



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

### **Usage guidelines**

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

### **About Google Book Search**

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>



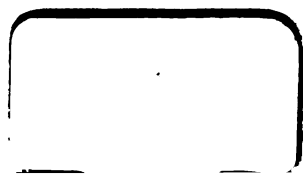
3 2044 106 426 729

+ H7838 f+ v. 2 (incompl.)

**Harvard University**



**FARLOW  
REFERENCE LIBRARY  
OF  
CRYPTOGAMIC BOTANY**











III.

FLORA TASMANIÆ.

---

BOTANY OF TASMANIA.

VOL. II.

MONOCOTYLEDONES AND ACOTYLEDONES.



FARLOW REFERENCE LIBRARY

54680

JUL 6 1979

THE BOTANY  
OF  
THE ANTARCTIC VOYAGE

OF  
H.M. DISCOVERY SHIPS *EREBUS* AND *TERROR*,

IN THE YEARS 1839-1843,

UNDER THE COMMAND OF

CAPTAIN SIR JAMES CLARK ROSS, Kt., R.N., F.R.S. & L.S., ETC.

BY

JOSEPH DALTON HOOKER, M.D., R.N., F.R.S. & L.S., ETC.

ASSISTANT SURGEON OF THE "EREBUS," AND BOTANIST TO THE EXPEDITION.

PART III.

FLORA TASMANIÆ.

VOL. II.

MONOCOTYLEDONES AND ACOTYLEDONES.

Published under the Authority of the Lords Commissioners of the Admiralty.

LONDON :

LOVELL REEVE, 5, HENRIETTA STREET, COVENT GARDEN.

1860.



easily recognized by its floating habit, closely distichously-branched stem, and minute imbricating leaves. The fructification forms small globular masses on the under surface of the frond.

Gen. II. PILULARIA, L.

1. *Pilularia globulifera* (Linn. Sp. Pl.)—*Engl. Bot. t. 521.* (Gunn, 1561.)

HAB. Marshy ground near Penquite, Gunn, and probably common elsewhere, but easily overlooked.

DISTRIB. Swan River, Europe, North Africa. (A native of England.)

Dr. Valentine, who has examined this plant in Tasmania, says that it might be distinguished from the European by the curved pedicels and pendulous capsules, but I find precisely similar states in English specimens. In Swan River specimens of *P. globulifera* the capsules are placed as in the European plant.—*Rhizome* slender, creeping, often submerged, rooting at the nodes. *Leaves* capillary, 2–4 inches high, bright-green. *Capsules* like pills, sessile or shortly peduncled, 2 lines in diameter, covered with hairs, four-celled, four-valved at the top, containing spores of two sorts, one large, the other very minute.

NAT. ORD. IV. CHARACEÆ.

The *Characeæ* are all fresh-water plants (very rarely inhabiting brackish water), often forming densely matted patches. They are leafless, with whorled branches, and minute axillary fructification. There are probably very many Tasmanian species, but they are difficult of investigation. The following enumeration of the known Tasmanian species is by Professor Alexander Braun, of Berlin, who is preparing a work on the Order; the descriptions of several have not, I believe, been published. In an able paper on the Australian and Antarctic *Charæ*, by Professor A. Braun, of Berlin, in Hooker's 'London Journal of Botany,' 1849, that learned author remarks that in Australia the greatest number of species are diœcious, whilst in Europe the contrary is the case; as also that all the true *Charæ* of Australia belong to the division *Haplostephaneæ*, while in other parts of the world the division *Diplostephaneæ* prevails, which latter seems to be entirely absent in Australia.

Gen. I. CHARA, L.

1. *Chara gymnopitys* (A. Braun).

HAB. Derwent River, rivulets at Launceston, etc. (Gunn, 1573, 1568, 1568?)

2. *Chara myriophylla* (F. Mueller).

HAB. Ponds at Georgetown; shallow muddy water, Lake St. Clair. (Gunn, 1568, 1572.)

3. *Chara australis* (Br. Prodr. 346).—*Braun, in Linnæa, xvii. 117; Plant. Preiss. ii. 148; Hook. Lond. Journ. Bot. i. 201.*

HAB. South Esk River, near Launceston. (Gunn, 1565, 1000.)

DISTRIB. Swan River, Victoria, New South Wales, New Zealand.

4. *Chara leptopitys* (A. Braun).

HAB. Mixed with *Triglochin*; Georgetown, near the sea, in places dry in summer. (Gunn, 1568, 1569.)

5. *Chara Hookeri* (A. Braun, in Hook. Lond. Journ. Bot. i. 202).—(*F. microphylla, F. Muell.*)

HAB. South Esk River, near Perth. (Gunn, 1001.)

6. *Chara mollusca* (A. Braun).

HAB. Lake St. Clair; abundant. (Gunn, 1570, 1571.)



7. *Chara fragilis* (Desv.).

HAB. Derwent River, at Glen Leith. (Gunn, 1576.)

DISTRIB. Common in Europe and other parts of the world.

8. *Chara macropogon* (A. Braun, in Linnæa, xvii. 116).—*Plant. Preiss.* ii. 147; *Hook. Lond. Journ. Bot.* i. 200.HAB. Brackish water at Georgetown, with *Ruppia*. (Gunn, 1568\*\*.)

DISTRIB. Swan River.

## Gen. II. NITELLA, Ag.

1. *Nitella gloeostachys* (A. Braun, in Hook. Lond. Journ. Bot. i. 196).

HAB. South Esk River. (Gunn, 1566.)

DISTRIB. Swan River.

2. *Nitella Hookeri* (A. Braun, l. c. 199).—*Fl. N. Zeal.* ii. 56. *Chara australis*, *Tayl. in Herb. Hook. etc.*HAB. Yorktown, Lake St. Clair (with *C. mollusca*). (Gunn, 1571, 1567.)

DISTRIB. New Zealand, Kerguelen's Land.

3. *Nitella penicillata* (A. Braun, l. c.).

HAB. Tasmania. (Gunn, 1002.)

4. *Nitella diffusa* (A. Braun).

HAB. Distillery Creek, Launceston; rivulet near Penquite. (Gunn, 1574.)

5. *Nitella gelatinosa* (A. Braun, l. c.).

HAB. Rivulets near Launceston, St. Patrick's River, etc. (Gunn, 1566\*, 1557, 1566?)

DISTRIB. Swan River.

6. *Nitella Gunnii* (A. Braun).

HAB. South Esk River. (Gunn, 1570\*, 1571\*, 1575.)

## NAT. ORD. V. MUSCI, Juss.

*By W. Wilson, Esq.*

Of the Tasmanian Mosses (about 250) here described, the majority (180) were collected by Mr. Gunn and myself, and have been elaborated by Mr. W. Wilson; the remainder consists of additions to the Tasmanian Flora, chiefly made by my friend W. Archer, Esq., F.L.S., of Cheshunt, and which have been examined and described by Mr. W. Mitten. Mr. Mitten has indeed prepared a paper on Mr. Archer's Mosses, which will be presented to the Linnæan Society of London; and I have to acknowledge my great obligations to him for allowing me to insert his descriptions of the new species here, as well as for some valuable notes on Gunn's Mosses and my own; these I have appended to Mr. Wilson's descriptions as this work was passing through the press.

There are no doubt very many fine Mosses to be discovered in Tasmania, especially on the lofty mountains, and on the damp western and southern coasts. A large proportion will probably prove identical with New Zealand species, and with those of Fucgia and the Antarctic Islands. In the New Zealand Flora upwards of 250 species of Mosses are described by Mr. Wilson, and many have been discovered since, especially by Mr. Knight, raising the number known to upwards of 300.—*J. D. II.*



## SUBORDER 1. ANDRÆACEÆ.

## Gen. I. ANDRÆEA, Ehrh.

*Theca* in receptaculo exserto sessilis, fere ad basin valvulis quatuor dehiscens; valvulis apice operculo persistente connexis. *Calyptra* mitræformis.

1. **Andræea petrophila** (Ehrh. Beitrage, i. 192); foliis e basi subvaginante patentibus ovato-acuminatis acutiusculis apice subobliquis dorso papillois nervibus siccitate appressis.—*Bruch et Schimper, Bryol. Eur. t. 623. A. rupestris, Hedw. Sp. M. t. 7. f. 2, descriptio ex parte, excl. syn.; Hook. et Tayl. Musc. Brit. ii. t. 8; Fl. Antarct. p. 396; Fl. N. Zeal. p. 57.*

HAB. On rocks, elev. 1500–3000 feet; Lake Echo, *J. D. II.*; the Falls, Cheshunt, *Archer*. (*Gunn, 1702.*)

DISTRIB. Europe, and all other temperate parts of the world.

2. **Andræea montana** (Mitten); "*A. alpina* simillima, foliis parte superiore sensim acutis vix acuminatis margine integerrimo, margine partis inferioris minute crenulato, cellulis basi oblongis elongatisque parallelogrammaticis cite in minutas longitudine  $\frac{1}{4000}$  latitudine  $\frac{1}{4000}$  uncie metientes transeuntibus."—*Mitten, in Journ. Linn. Soc. ined. (TAB. CLXXI. Fig. 1.)*

HAB. On rocks: rivulet near Cumming's Head, Western Mountains, *Archer*.

"Closely resembling *A. alpina* in size, habit, colour of its leaves, and general appearance, but the outline of its leaves, when compressed, is ovate, slightly acuminate, the cells at the base distinctly parallelogrammatic, and those of the upper portion larger. *A. acutifolia* has much narrower leaves." *Mitten, l. c.—PLATE CLXXI. Fig. 1; 1–3, leaves:—all magnified.*

3. **Andræea acuminata** (Mitten); "*A. acutifolia* simillima, foliis e basi erecta caulem amplectente patulis apicibus incurvis explanatis ovato-lanceolatis margine partis erectæ minute crenulato dorso apicem versus inconspicue papillois, cellulis ex apice ad mediam minutis quadrato-rotundatis diametro circiter  $\frac{1}{4000}$  uncie metientibus deinde in oblongas subparallelogrammaticas parietes latitudine superantes inferne in longioribus angustis fuscidulis parietibus crassioribus transeuntibus, perichætialibus ovalibus tenuiter acuminatis convolutis."—*Mitten, l. c. (TAB. CLXXI. Fig. 2.)*

HAB. On rocks: Cheshunt, *Archer*.

"Very nearly allied to *A. acutifolia*, *Hook. fil. et Wils. Fl. Antarct. p. 118*, but with leaves a little wider, and cells in the upper portion smaller and more numerous, all with much narrower walls, those just below the middle of the leaf with walls narrower than their own width and pellucid. From *A. petrophila* it recedes in the form of its leaves, as well as in their cellular structure already described." *Mitten, l. c.—PLATE CLXXI. Fig. 2; 1, perichætium and capsule; 2, leaves:—both magnified.*

4. **Andræea nitida** (*Hook. fil. et Wils.*); caulibus suberectis laxè cæspitosis parce ramosis, foliis erecto-patentibus ovato-oblongis obtuse apiculatis concavis nerviis nitidis marginibus reflexis, perichætialibus paulo longioribus erectis.—*Fl. Antarct. i. p. 118. t. 57. f. 3; Mitten, l. c.*

HAB. On stones: rivulet near Cumming's Head, Western Mountains, *Archer*.

DISTRIB. Lord Auckland's Islands.

5. **Andræea subulata** (*Harvey*); caule subramoso, foliis falcato-secundis subulatis attenuatis basi dilatatis crassinerviis, perichætialibus convolutis.—*A. subulata, Harvey, in Hook. Ic. Plant. iii. t. 201; Fl. Antarct. i. 119; Mitten, l. c.*

HAB. On rocks: Jackey's Plain Creek, and rivulet near Cumming's Head, Western Mountains, *Archer*.

DISTRIB. Cape of Good Hope, Lord Auckland's Group, and Campbell's Island.





## SUBORDER 2. SPHAGNACEÆ.

Gen. II. SPHAGNUM, *L.*

*Theca* globosa, in receptaculo exserto sessilis, stomate nudo exannulato. *Calyptra* medio rupta, basi persistente. *Fructificatio* axillaris.

1. **Sphagnum cymbifolium** (Dillen. Hist. Musc. t. 32. f. 1); caule robusto elongato, ramis confertis brevibus tumidis, foliis rotundo-ovatis concavis obtusis apice dorsa muricatis, utriculis (cellulis ramulorum externis) spiraliter striatis.—*Bridel, Bryol. Univ.* Sphagnum obtusifolium, *Hook. et Tayl. ex parte, var. condensatum.* (*Gunn, 1.*)

HAB. Western Mountains, elev. 3000 feet, in bogs, *Gunn, 1578*; swamp, New Norfolk, *Oldfield, 62, J. D. H.*; Cheshunt, *Archer.*

DISTRIB. Europe, and all parts of the world.

2. **Sphagnum compactum** (Brid. Sp. Musc. i. 18, et Bryol. Univ. i. 16); caule robusto, ramis dense approximatis patentibus crassis strictis, foliis rameis imbricatis ovato-oblongis concavis apice subinflexis truncatis denticulatis.—*Nees et Hornsch. Bryol. Germ. t. 2. f. 5.*

Var. *γ. ovatum*; foliis brevioribus ovatis subacutis.

HAB. In bogs: Huon River, *Oldfield, 61.*

DISTRIB. Campbell's Island, New Zealand. The ordinary form of the species frequent in Europe and in North America.

The var. *γ* much resembles *S. cymbifolium*, but the leaves are not muricate at the dorsal apex, and the utricles of the branches are destitute of spiral striæ. *Foliage* of a pale fawn-colour.

3. **Sphagnum australe** (Mitten, in Linn. Journ. ined.); "*S. cymbifolio* simile, caule e seriebus circiter quinque cellularum corticato, foliis brevi-oblongis obtusis margine apicis incurvo erosulo basi calcaratis immarginatis spatiis intercellularibus inanibus, ramulis copiosis patentibus recurvis, cortice cellulis inanibus foliis imbricatis ovatis apice latiusculis obtusis margine ex una serie cellularum angustissimarum apicem versus remote minuteque serrulato spatiis latis longitudine, in folii medio, latitudinem quadruplo superantibus fibris spiris approximatis repletis poris parvis singulis quinisque, ramulis pendulis foliis appressis ovato-lanceolatis obtusis spatiis majoribus poris circiter quinque."—*S. compactum, var. ovatum, Hook. fl. et Wils. Fl. Antarct. p. 122.*

HAB. Huon River, *Oldfield.*

DISTRIB. Campbell's Island.

"Very similar to *S. cymbifolium* and to *S. antarcticum*, but in structure allied only to the latter, from which it recedes in the form of its branch-leaves. *S. compactum* is immediately distinguished from these species by its cortex being composed of a single series of cells."—*Mitten, l. c.*

4. **Sphagnum contortum** (Schultz, Suppl. Fl. Starg. 64); caule elongato rigidiusculo, foliis ovato-lanceolatis imbricatis acutis concavis subcoriaceis. (*Oldfield, 29.*)

Var. 2. *laxum*; ramulis distantibus attenuatis patulis. (*Gunn, 41.*)

Var. 3. *scorpioides*; ramis dense confertis singulis binisque brevibus patentibus sursum curvatis, foliis elongatis apice præmorsis, rameis erectis subsecundis. (*Gunn, 2.*)

Var. 4. *intermedium*; caule humili, ramulis dense confertis attenuatis, foliis laxer eticulatis. (*Gunn, 3.*)

HAB. In bogs. Vars. 1 and 3. Mount Wellington, and the others common.

DISTRIB. Europe.



Var. 4, from the lax texture of the foliage, resembles *S. acutifolium*, but the stem has a single layer of cortical cellules as usual. Var. 3 has a singular aspect, and may perhaps be a distinct species, with purplish foliage.

5. *Sphagnum molliculum* (Mitten, in Linn. Soc. Journ. ined.); "*S. plumoso* simile, caule cortice ex strato unico cellularum forinato, foliis subelliptico-ovalibus basi brevissime calcaratis apice rotundatis subtruncatis minute denticulatis spatiis intercellularibus ut plurimum repletis margine e serie triplici cellularum angustissimarum composito, ramulis flaccidis cortice cellulis inanibus foliis ovatis acuminatis marginibus superne incurvis apice cucullato-concavis rotundatis argute denticulatis marginibus ut in caulinis spatiis angustis elongatis spiris repletis poris nullis?"

HAB. Cheshunt, *Archer*.

"Habit intermediate between *S. acutifolium* and *S. plumosum*, but approaching more nearly to the latter."—*Mitten, l. c.*

6. *Sphagnum cymbifolioides* (C. Mueller, Bot. Zeit. 1851, p. 546); "caulis procerus flaccidus, ramis subremotis breviusculis cuspidatis curvatis patentibus vel recurvatis, comalibus erectis brevioribus densiusculis obtuse cuspidatis; folia caulina e basi latissima plana ovalia, apice involutaceo obtuso brevi, haud truncata, e cellulis breviusculis basi laxioribus longioribus, ductibus subheteromorphis præditis, ubique fere repletis reticulata, immarginata, e ceteris rameis similia; ramea ovalia apice haud involuta, erecto-appressa nec falcata nec secunda, summo apice truncato dentibus circiter octo coronato, tenuiter marginata, e cellulis teneris amplis flexuosis valde repletis constructa; cellulæ ramorum inanes."—*Mitten, l. c.*

HAB. Cheshunt, *Archer*.

"The description above quoted, according to Mossman's specimens, is incorrect, for the cauline leaves have a margin of three rows of narrow cells. In this species the cortical cells are in a single stratum, and the leaves of the ramuli have the intercellular spaces with a pore between every turn of the spiral fibre."—*Mitten, l. c.*

7. *Sphagnum confertum* (Mitten, in Journ. Linn. Soc. ined.); "habitu *S. compacti*, ramulis dense confertis breviusculis, caule cortice e serie cellularum triplici formato serie externa fibris repleto, foliis oblongis apice rotundatis suberosulis spatiis intercellularibus superioribus fibris repletis inferioribus inanibus margine nullo, ramulis cortice cellulis inanibus foliis ovatis concavis obtusis apice truncatis denticulatis margine serie unica cellularum angustissimarum superne minutissime serrulato spatiis latiusculis fibris spiris approximatis repletis poris singulis."

HAB. Rivulet near Cumming's Head, Western Mountains, *Archer*.

"Appearance and habit similar to *S. subsecundum*, but the cortical cells disposed in a triple series."—*Mitten, l. c.*

### SUBORDER 3. BRYACEÆ.

#### Section 1. ACROCARPI.—*Fruit terminal.*

#### Tribe I. PHASCEÆ.

#### Gen. III. PHASCUM, *J.*

Subgenus 1. EPHEMERUM.—*Plantæ humillimæ; foliis ovali-lanceolatis, plerumque profunde dentatis; areolatione laza. Capsula immersa. Calyptra campanulata.*

1. *Phascum (Ephemerum) cristatum* (Hook. et Wils.; Icon. Plant. Rar. t. 737 A); monoicum, exiguum, basi filis protothalli instructum; folia spatulato-lanceolata acuminata inciso-dentata, laciniis den-



tato-ciliatis, dorso ciliato-cristata; theca immersa subsessilis ovali-globosa acutiuscula; calyptra campanulata rufo-fusca.—Mitten, in Journ. Linn. Soc. ined.

HAB. Cheshunt, Archer.

DISTRIB. Swan River.

Subgenus 2. *ASTOMUM*.—*Plantæ elatiore, cæspitose. Folia siccitate crispata; areolatione e cellulis rotundatis, parvis. Capsula pedunculata. Calyptra dimidiata.*

2. *Phascum (Astomum) cylindricum* (Taylor, in Lond. Journ. Bot. 1846, p. 42).—Mitten, l. c.

HAB. Cheshunt, Archer.

DISTRIB. Swan River.

*Capsula elliptica, subrotunda, apiculata (operculo persistente), brevi-pedicellata. Calyptra cucullata vel conico-campanulata. Florescentia monoica.*

Subgenus 3. *ACAULON* (Bryol. Europæa).—*Gemmaforme, perpusillum, annuum. Capsula globosa, immersa. Calyptra minima, capsulæ vertice insidente.*

3. *Phascum (Acaulon) apiculatum* (Hook. fil. et Wils. Fl. N. Zeal. p. 59. t. 83. f. 1); foliis in bulbillo arcte conniventibus obovato-subrotundis acuminulatis concavis integerrimis nervo valido excurrente apiculatis.

Var. *turgulum*; foliis internis turgide concavis longioribus.—Mitten, in Journ. Linn. Soc. ined.

HAB. Cheshunt, Archer.

Subgenus 4. *PLEURIDIUM*.—*Caules tenelli, filiformes, innovationibus annuis continuati (perennes), subramosi. Capsula brevi-pedicellata, erecta, ovata, brevi-apiculata, terminalis vel per innovationes lateralis. Calyptra plerumque cucullata. Vaginula oblongo-cylindrica.*—Fl. N. Zeal. p. 58.

4. *Phascum (Pleuridium) gracilentum* (Mitten); "monoicum, habitu *P. alternifolii*, gracile, foliis inferioribus e basi ovali subulato-lanceolato-acuminatis nervo subulam superiorem totam occupante margine ad basin partis subulati indistincte crenulato vel lævi cellulis inferioribus oblongis parallelogrammaticis superioribus minoribus, perichætiæ thecam non tegentibus patulis anguste ellipticis subulato longe attenuatis canaliculatis apice parce denticulatis integerrimisve laxè areolatis, theca in pedunculo brevi subgloboso leptoderma operculo brevissimo, calyptra cucullata ad thecæ mediam descendente."—Mitten, in Journ. Linn. Soc. ined. (TAB. CLXXI. Fig. 3.)

HAB. West side of Tower Hill, Cheshunt, Archer.

DISTRIB. King George's Sound, New Holland (Menzies).

"Excepting that the perichætical leaves are less straight and bristly, in general appearance scarcely different from *P. alternifolium*, but its leaves are of a different form." Mitten, l. c.—PLATE CLXXI. Fig. 3; 1, fruiting specimen; 2, cauline, and 3, perichætical leaves; 4, male flower; 5, operculum:—all magnified.

5. *Phascum (Pleuridium) tenellum* (Mitten, in Journ. Linn. Soc. ined.); "monoicum, habitu staturaque *P. nitidi*, flore masculo gemmæformi minuto in foliorum caulinarum axillis cellulis foliorum paululum brevioribus firmioribusque."

HAB. Cheshunt, Archer.

"When dry, firmer than *P. nitidum*, with which it corresponds very closely, excepting in the male inflorescence, which has been observed on a single individual only. The substance of the leaves is firmer, and the whole plant pale-brown. It appears to be distinct, but requires further examination in living specimens."—Mitten, l. c.



## Gen. IV. BRUCHIA, Schwægr.

*Capsula* clausa, apophysi instructa. *Flores masculi* terminales, gemmæformes. *Calyptra* subulato-campanulata, basi multifida.—*Schwægr. Suppl.* ii. p. 91.

§ 1. SPORLEDERA (Hampe).—*Subacaules; theca subæqualis vel pyriformis.*

1. **Bruchia minuta** (Mitten, in Journ. Linn. Soc. ined.); monoica, perpusilla, brevicaulis, foliis patentibus lanceolatis angustatis nervo percurrente, margine superne serrulato, cellulis laxiusculis, theca suborbiculari-ovata acuta collo sensim attenuato sessili erecta, calyptra apice rugulosa thecæ tertiam partem obtegente, flore masculo gemmæformi." (TAB. CLXXI. Fig. 4.)

HAB. Sides of ditches: Cheshunt, *Archer*.

"Plants very minute, brownish, considerably smaller than *B. brevipes*.—*Leaves*, when dry, appressed. In appearance it resembles the smallest states of *Pleuridium nitidum*." Mitten, *l. c.*—PLATE CLXXI. Fig. 1, fruiting specimen; 2, leaf:—*both magnified.*

## Tribe II. WEISSIÆ.

## Gen. V. GYMNSTOMUM, Hedw. (in parte).

*Peristomium* nullum. *Capsula* erecta, ovalis, oblonga vel subrotunda, æqualis. *Annulus* obscurus, persistens. *Operculum* oblique rostratum. *Calyptra* cucullata.—*Caules perennes.* Florescentia monoica dioicave; fl. mas. gemmæformis.

1. **Gymnostomum calcareum** (Nees et Hornsch. Bryol. Germ. i. 153. t. 10); compacte cæspitulosum, caule ramoso tenerrimo, foliis patulis lineari-lanceolatis obtusiusculis margine planis, capsula ovali-oblonga brevicolla erythrostoma, operculo subulato-conico.—*Bryol. Europ. t. 32.*

HAB. North-west Bay, on rocks. (*Oldfield*, 313.)

DISTRIB. New Zealand, Europe.

2. **Gymnostomum bicolor?** (Br. et Sch. Bryol. Europ. t. 29).

HAB. On the ground, amongst Lichens and other Mosses. (*Oldfield*, with 327.)

Barren specimens.—*Stems* loosely tufted, slender. *Leaves* distant, widely spreading, recurved, of firmer texture and more opaque than in *G. calcareum*, loosely twisted when dry, at first yellowish, brownish when old, linear, obtusely apiculate, papillose at the back, slightly denticulate at the apex; nerve pellucid; areolæ roundish, minute.

## Gen. VI. WEISSIA, Hedwig.

*Peristomium* simplex; *dentes* sedecim, æquidistantes, basi liberi, lanceolati v. lineari-lanceolati, transverse trabeculati, dorso convexi, integri vel pertusi, interdum apice bifidi, siccitate erecti vel patentés. *Capsula* erecta, ovali-oblonga. *Annulus* persistens, vel nullus. *Operculum* oblique rostratum.—*Caules perennes.* Florescentia monoica dioicave; fl. mas. gemmæformis.

1. **Weissia flavipes** (Hook. fil. et Wils. Fl. N. Zeal. 59. t. 83. f. 2); monoica, cæspitosa, foliis erecto-patentibus siccitate intortis lineari-lanceolatis angustatis margine incurviusculis subplanis costa percurrente mucronulatis, seta elongata luteola, capsula subcylindrica erecta erythrostoma, peristomii dentibus perforatis, operculo tenuirostri.

HAB. Gullies Road, Brown's River, and Deep Gully, on Mount Wellington, *Oldfield*, 265. (*Gunn*, 1617.) South Port, *Stuart*.





DISTRIB. New Zealand.

Closely allied to *W. controversa* (Hedw.), distinguished by its pale-yellow fruit-stalks.—*Leaves* longer and narrower, the margins nearly plane. *Teeth* of the peristome perforated. *Annulus* none.

2. *Weissia controversa* (Hedw.); cæspitosa, foliis lanceolatis lineari-lanceolatisve margine incurvis et involutis costa percursa mucronatis, capsula ovali siccitate substriata, operculo conico-rostellato, peristomii dentibus subintegris lineari-lanceolatis obtusiusculis.—*Hedw. Musc. Proud.*; *Schwagr.*; *Hook. et Tayl.*; *Mitten, in Journ. Linn. Soc. ined.* *W. viridula, Brid. Bryol. Europ.*

HAB. Cheshunt, *Archer.*

DISTRIB. All parts of the world.

3. *Weissia microcarpa* (Hook. fil. et Wils.); monoica, cæspitosa, foliis erecto-patentibus subincurvis siccitate crispulis lineari-lanceolatis carinato-concavis margine subreflexis, perichætalibus subvaginantibus caulinis similibus, seta longiuscula gracili flavescente, capsula minuta ovali erecta, operculo longirostri, peristomii dentibus brevibus apice subbifidis.—*Holomitrium cirrhatum, Mitten, in Journ. Linn. Soc. ined.* (TAB. CLXXI. Fig. 5.)

HAB. On rocks and stones: Glen Leith, and on Mount Nelson, *J. D. H.*; Cheshunt, *Archer.*

Closely allied to *W. cirrhata* (Hedw.).—*Capsule* much smaller, oval, scarcely contracted at the mouth, reddish-brown. *Teeth* of the peristome shorter, slightly bifid, bright-red, not trabeculate at the back. *Operculum* with a reddish border. *Seta* longer and more slender. *Leaves* yellowish, longer and more acute, less reflexed in the margin, less crisped when dry; areolæ at the base smaller, not pellucid. *Perichætal leaves* longer and less sheathing.—PLATE CLXXI. Fig. 5; 1, fruiting specimen; 2, leaf; 3 and 4, capsule; 5, calyptra; 6, teeth:—*all magnified.*

#### Gen. VII. SYMBLEPHARIS, *Montagne.*

*Peristomium simplex*; *dentes* 8, breves, bigeminati (vel 32, quaternatim approximati), erecti, siccitate in conum conniventes. *Capsula* subcylindrica, erecta, microstoma. *Calyptra* cylindrico-subulata, elongata, dimidiata. *Perichætii* folia longissima, vaginantia.—*Holomitrium, Bridel.* *Sprucea, Hook. fl. et Wils. in Fl. Antarct.*

1. *Symbblepharis perichætialis* (Wils.); caule erecto ramoso, foliis confertis erecto-patentibus siccitate crispis e basi lanceolata subulato-attenuatis integerrimis canaliculatis margine planis nervo continuo, perichætalibus longissimis, capsula oblonga, operculo conico-subulato recto.—*Fl. N. Zeal. p. 60.* *Trichostomum perichætiale, Hook. Musc. Exot. t. 73.* *Holomitrium perichætiale, Bridel.*

HAB. Tasmania. (*Gunn, 18.*)

DISTRIB. Mauritius, Campbell's Island, New Zealand.

#### Tribe III. FISSIDENTEÆ.

#### Gen. VIII. FISSIDENS, *Hedw.*

*Peristomium simplex*; *dentes* 16, æquidistantes, longiusculi, linea media percursa, in crura duo raria inæqualia subulata fissi, crebre articulati, hygroscopici, siccitate geniculati incurvi. *Calyptra* cuculliformis, raro conico-mitræformis. *Fructificatio* in caule primario vel in ramis brevibus secundariis terminalis.—*Folia disticha, equitantia, alternantia, dorso in alam et apice in laminam verticalem sculpelliformem producta, compresso-canaliculata, semiamplexicaulia.*

Distinguished from *Dicranum* by the distichous, equitant, vertical leaves.



§ a. *Folia marginata.*

1. **Fissidens incurvus** (Schwægr. Suppl. i. 2. p. 5. t. 49); caule simplici decumbente, foliis lanceolatis marginatis lamina dorsali supra basin discontinuata nervo subcontinuo, capsula cernua incurva, operculo conico-acuminato, fl. masc. terminali vel basilari gemmæformi.—*Br. et Sch. Bryol. Europ. ex parte.*

Var. 1; folii laminis dorsalibus verticalibusque vix marginatis.

Var. 2; foliis cuspidatis rigidulis flexuosis lutescentibus, seta pallida.

HAB. Var. 1. St. Patrick's River; on the ground, in shady forests. (*Gunn, 1622.*) (*Oldfield, 333.*)

Var. 2. By the sea-side, South Port. (*Gunn, 15.*)

DISTRIB. Europe, America.

2. **Fissidens vittatus** (Hook. fil. et Wils.); caule subramoso, foliis incurvis secundisve ovato-ligulatis marginatis siccitate crispatis involutis basi undulatis infra marginem vittatis, seta terminali, capsula ovata cernua, operculo conico-rostellato. (TAB. CLXXI. Fig. 6.)

HAB. Circular Head, on the ground. (*Gunn, 1697.*)

DISTRIB. Swan River, South-eastern Australia.

*Stem* about 2 lines in height. *Leaves* apiculate, bent to one side, carinate on the back, nerve strong and prominent, the vittæ at the base of the leaf forming a cartilaginous margin in the upper part; male flower not found (dioicous?).—Closely allied to *F. limbatus* (Sullivan, in Lieutenant Whipple's Expedition).—PLATE CLXXI. Fig. 6; 1, fruiting specimen; 2, leaf; 3, section of ditto; 4, capsule:—*all magnified.*

3. **Fissidens rigidulus** (Hook. fil. et Wils. Fl. N. Zeal. p. 61. t. 83. f. 3); dioicous?, caule gracili elongato ramoso polyphylo, foliis rigidulis siccitate subcrispis ovato-lanceolatis acutiusculis (lamina verticali brevi) margine valde incrassatis, nervo valido pellucido continuo, capsula terminali ovali suberecta, operculo rostellato, fl. masc. terminali.

HAB. Circular Head; on stones in running water, Mount Wellington; Tent rivulet, Cheshunt, and on rocks, Stackhouse Falls, *Archer.* (*Gunn, 1699.*) (*Oldfield, 250.*)

DISTRIB. New Zealand.

4. **Fissidens brevifolius** (Hook. fil. et Wils. Fl. N. Zeal. p. 61. t. 83. f. 4); caule longiusculo, ramis fructiferis basilaribus brevioribus, foliis caulinis confertis ovatis brevissimis cymbiformibus basi vaginante tantum marginatis, rameis dissitis longius acuminatis, lamina dorsali discontinua, capsula suberecta.

Var. *β. floribundus*; foliis longioribus siccitate crispulis, floribus fœm. et masc. numerosis axillaribus.

HAB. Shady banks by the Derwent, New Norfolk. (*Oldfield, 218.*)

DISTRIB. New Zealand, South Africa, South America.

5. **Fissidens Taylori** (C. Mueller); monoicus, humillimus, simplex, laxè aggregatus; caulibus sterilibus flexuosis, foliis 7–8-jugis infra laxis superne confertis erecto-patentibus oblongis obtusissimis nervo spiculatis; lamina dorsali supra basin desinente; planta fertili foliis 2–3-jugis erectis adpressis amplectantibus acuminatis; seta subflexuosa; theca ovali, inclinata, operculo rostrato breviorè.—*C. Mueller, Synops. Musc. Frond. i. 65; Mitten, in Journ. Linn. Soc. ined. F. pygmæus, Taylor, Lond. Journ. Bot. 1846, p. 66.*

HAB. On the earth, in copses, forests, etc.: Cheshunt, *Archer.*

DISTRIB. Australia.

§ b. *Folia immarginata.*

6. **Fissidens strictus** (Hook. fil. et Wils.); monoicus, caule longiusculo gracili subramoso, ramis



fructiferis axillaribus polyphyllis, foliis strictis rigidiusculis carnosis confertis suberectis lineari-lanceolatis acutiusculis integerrimis subevanidinerviis, seta brevi crassa, capsula turbinata parva suberecta pachyderma, operculo rostrato capsulæ æquali, calyptra parva mitræformi. (TAB. CLXXI. Fig. 7.)

HAB. Yorktown rivulet. (*Gunn*, 1610.) On a charred log, under water, in the river Derwent. (*Oldfield*, 37.)

Stem  $\frac{1}{4}$  inch in height. Fertile ramuli not 2 lines in length. Seta 1-2 lin. Capsule very small, roundish or turbinate. Peristome red. Male flowers terminal on axillary ramuli.—In habit like *F. grandifrons* (Bridel), but not half the size. Leaves of thinner texture, with larger areolæ and more evident nerve, which is reddish in the older leaves. Colour of the foliage lurid in age, at first pale-green.—PLATE CLXXI. Fig. 7; 1, fruiting specimen; 2 and 3, leaves; 4, section of ditto; 5, capsule; 6, calyptra:—all magnified.

7. *Fissidens tenellus* (Hook. fil. et Wils. Fl. N. Zeal. p. 62. t. 83. f. 6); caule pusillo decumbente 6-8-phylo, foliis lineari-lanceolatis acutis crenulatis basi vaginante denticulatis nervo valido concolore subexcurrente, capsula erecta, operculo longirostri, calyptra papillosa mitræformi, fl. masc. basilari gemmæformi.

HAB. On the ground. (*Gunn*, 17 b.) (*Oldfield*.) Sandstone Hill, *Archer*.

DISTRIB. New Zealand.

8. *Fissidens oblongifolius* (Hook. fil. et Wils. Fl. N. Zeal. p. 62. t. 83. f. 8); monoicus, fronde lineari-elongata polyphylla, foliis confertis erecto-patentibus elongatis anguste ligulatis obtusiusculis integris siccitate subinflexis, seta gracili, capsula minuta ovali inclinata, fl. masc. axillari.

HAB. North-west Bay, on rocks. (*Oldfield*, 313 d.) Cataract Hill, *Archer*.

DISTRIB. New Zealand.

9. *Fissidens integerrimus* (Mitten, in Journ. Linn. Soc. ined.); "dioicus?, caule humili cæspitoso ramoso, foliis pluri-jugis in frondem linearem approximatis patentibus lineari-lanceolatis apice obtusiusculis, nervo concolore sub apice evanido lamina vera ad mediam producta inæquali, uno latere rotundata, dorsali basi sensim angustata omnibus lam. immarginatis integerrimis cellulis diametro circiter  $\frac{1}{3000}$  uncia metientibus limitibus crassiusculis, perichætialibus conformibus, theca in pedunculo breve apicali crassiusculo suberecta breve ovali, operculo subulato brevior." (TAB. CLXXI. Fig. 8.)

HAB. Cheshunt, *Archer*.

"Half an inch high. Seta scarcely 2 lines long.—In general appearance nearly allied to *F. oblongifolius*, but its leaves are entire, the cells smaller, with thicker walls. Male flowers absent. In the few specimens yet seen the plants are, above, brownish-yellow; below, black." *Mitten*, l. c.—PLATE CLXXI. Fig. 8; 1, part of stem and leaves; 2, capsule:—both magnified.

10. *Fissidens pallidus* (Hook. fil. et Wils. Fl. N. Zeal. p. 62. t. 83. f. 7); dioicus, fronde flabelliformi breviuscula decumbente, foliis lineari-lanceolatis elongatis confertis acutis integerrimis siccitate inflexis, capsula cernua, operculo longirostri.

HAB. On the ground. (Specimen barren and scanty.) (*Gunn*.)

DISTRIB. New Zealand.

11. *Fissidens adiantoides*? (Dill. Hist. Musc. 264. t. 34. f. 3).

Var. caule gracili polyphylo, foliis confertis brevioribus (oblongo-ovatis) siccitate incurvis.

HAB. On the ground? (*Gunn*, 45.) (Specimen barren and scanty.) Small island at the foot of Top Paddock, Woolmers, *Archer*.

DISTRIB. Europe, America.



## Tribe IV. LEUCOBRYACEÆ.

Gen. IX. LEUCOBRYUM, *Hampe*.

*Peristomium simplex*; *dentes* 16, lanceolato-subulati, bicrures, transverse articulati, intus trabeculati, extus strigillosi. *Capsula* cernua, ovalis, gibba, collo strumoso, operculo longirostri, coriacea, 8-striata, sicca sulcata, exannulata. *Calyptra* inflato-cuculliformis, longirostris.—Folia lanceolato-subulata, convolutaceo-concava, spongiosa, e cellularum stratis 2 vel pluribus constata (cellulis quadrato-hexagonis porosis), enervia, glauca vel albida.

1. **Leucobryum candidum** (*Dicranum*, Schwægr. Suppl. t. 187 β); caule ramoso dichotomo fragili, foliis confertis erectis secundis subfalcatis ovato-lanceolatis concavis dorso tuberculatis corrugatis, ramulis fructiferis axillaribus numerosis brevissimis, capsula cernua strumosa sulcata.—*Fl. N. Zeal.* p. 64.

HAB. On decayed wood at the roots of trees, in swamps, etc.: Huon River; Brown's River. (*Oldfield*, 108, 329.) (*J. D. II.*) Cheshunt, *Archer*.

DISTRIB. New Zealand, Australia.

## Tribe V. DICRANACEÆ.

Gen. X. DICRANUM, *Hedw.* (*in parte*).

*Peristomium simplex*; *dentes* 16, basi confluentes, sicci et humidi arcuato-conniventes, lanceolati, ad medium et ultra in crura duo subulata inæqualia divisi, intus trabeculati. *Capsula* plerumque cernua, oblonga, inæqualis. *Operculum* longirostre, rostro obliquo. *Calyptra* cucullata.—Folia e cellularum strato unico conflata, nervata. Caules cæspitiosi, perennes.

1. **Dicranum Sieberianum** (Hornsch. Musc. Sieb. Nov. Holl. n. 16); caule ramoso fastigiato, foliis falcatis convoluto-canaliculatis ovato-lanceolatis acuminatis superioribus piliferis tenuissime pellucido-marginatis dorso papillosis, perichætalibus vaginatis piliferis, capsula longe pedunculata ovali cernua parva, operculo longirostri.—*Schwægr. Suppl. t.* 252. *Leucodon pallidus*, *Hook. Musc. Erot. t.* 172.

HAB. Specimen barren and scanty, growing with *D. pungens*.—(*Gunn.*)

DISTRIB. Australia, New Zealand.

2. **Dicranum dicarpon** (Hornsch. Musc. Sieb. Nov. Holl. n. 10); caule robusto dense radiculoso-tomentoso, foliis patulis squarrosis subsecundis ex basi ovato-lanceolato subulatis cuspidatis flexuosis striatis solidinerviis strigosis margine dorsoque spinuloso-serratis, setis brevibus geminatis longe vaginatis, capsulis curvatis cernuis, operculo longirostri.—*Schwægr. Suppl. t.* 251. *D. leucolomoides*, *C. Mueller, Bot. Zeit.* 1851, p. 549, *fide Mitten, in Journ. Linn. Soc.*

Var. β. *spinosum*; caule elatiore, setis numerosis longioribus.

HAB. In dense moist woods: Back River Gully, New Norfolk, *Oldfield*, 36 (*J. D. H.*) (*Gunn*, 1682); Cheshunt and elsewhere, frequent, *Archer*; Wellington Falls, Mount Wellington, *Mossmun*.

DISTRIB. Australia, New Zealand.

3. **Dicranum Billardieri** (Bridel, Br. Un. i. 401); caule elato, foliis falcato-secundis ovato-lanceolatis acuminatis concavis membranaceis tenuinerviis estriatis apice serrulatis, seta longiore, capsula subcylindrica curvata basi strumifera, operculo longirostri.—*Schwægr. Suppl. t.* 121; *Fl. Antarct.* 129, 407.

HAB. Common at the roots of trees: summit of Mount Wellington, Brown's River Gully. (*Gunn*, 1581, 11 b; *Stuart*; *J. D. II.*; *Oldfield*, 110, 112, 113, 200.)

DISTRIB. Lord Auckland's Island, Fuegia, New Zealand, Australia.





4. **Dicranum angustinerve** (Mitten, in Journ. Linn. Soc. ined.); "dioicum, *D. Billardieri* simile, caulibus brevibus ramosis, foliis patentibus subsecundis e basi subovali elongata sensim angustatis nervo angusto percurrente dorso marginibusque apicem versus serrulatis cellulis elongatis angustis alaribus oblongis quadratisque flavide fuscis in massam quadratam utrinque dispositis, perichætalibus convolutis internis vaginantibus subito in acuminem brevem setiformem angustatis, theca in pedunculo breviusculo semiunciali arcuata inclinata basi strumosa, peristomii dentibus rubris dicranis." (TAB. CLXXI. Fig. 9.)

HAB. On dead wood: Cheshunt, *Archer*. Gathered also by Mr. Gunn, and communicated amongst some other Tasmanian Mosses by Mr. J. Nowell.

"Nearly allied to *D. Billardieri*, but with somewhat the aspect of *D. reflexum*, C. Mueller. It differs from *D. Billardieri* in the form of the wider portion of its leaves being more elongate, and the narrow upper part being shorter. The internal perichætal leaves are also furnished with a bristle-like point, which seems wanting in *D. Billardieri*." Mitten, *l. c.*—PLATE CLXXI. Fig. 9; 1, cauline leaf; 2, perichæcium; 3, capsule; 4, teeth:—*all magnified.*

5. **Dicranum pungens** (Hook. fil. et Wils. Fl. Antarct. p. 17. t. 59. f. 1); caule elongato subramoso, foliis secundis patentibus lineari-lanceolatis convolutis apice carinatis serrulatis tenuinerviis, perichætalibus convolutis elongatis, seta mediocri torta, capsula inclinata oblonga curvula, operculo longirostri.—*D. Novæ-Hollandiæ, Horusch. Musc. Sieb. Nov. Holl. n. 7 (in parte).*

HAB. Among rocks and running water: summit of Mount Wellington. (*Gunn, 12.*) (*Oldfield, 109, 255.*) Cheshunt, *Archer*.

DISTRIB. Lord Auckland's and Campbell's Islands, Australia.

6. **Dicranum robustum** (Hook. fil. et Wils.); caule elongato, foliis falcato-secundis longissimis lineari-lanceolatis setaceo-attenuatis convolutis spinuloso-serrulatis nervo latiusculo excurrente, perichætalibus vaginantibus, capsula cylindracea inclinata curvula strumulosa.—*Fl. N. Zeal. p. 66; Fl. Antarct. p. 406. t. 152. f. 8; Mitten, in Journ. Linn. Soc. ined.*

HAB. Cheshunt, *Archer*.

DISTRIB. Lord Auckland's Group, Campbell's Island, Kerguelen's Land, Fuegia, and New Zealand.

7. **Dicranum setosum** (Hook. fil. et Wils. Fl. Antarct. p. 17. t. 58. f. 5); caule fragili subramoso, foliis strictis fragilibus suberectis longissime lanceolato-setaceis apice serrulatis nervo latiusculo subexcurrente, seta longiuscula, capsula oblonga curvata, operculo longirostri.—*Fl. N. Zeal. p. 66.*

HAB. Springs, Mount Wellington. (*J. D. II.*) (*Oldfield, 107.*)

DISTRIB. New Zealand, Lord Auckland's Group, and Campbell's Island.

8. **Dicranum Menziesii** (Taylor, in Phytol. ii. p. 1094); caule radiculoso-tomentoso, foliis confertis secundis subrigidis lanceolato-setaceis crassinerviis, seta brevi, capsula oblonga suberecta subexserta strumulosa, operculo longirostri.—*Fl. Antarct. p. 128. t. 58. f. 4. D. brachypelma, C. Mueller, Bot. Zeit. 1851, p. 550, jide Mitten, in Journ. Linn. Soc. ined.*

Var. *β. rigidum*; foliis rigidioribus minus confertis nigro-viridibus patulis subfalcatis, caule robustiore.

HAB. Dense forests. (*Gunn, 10.*) River Acheron. (*Gunn, 158: b.*) Cheshunt, *Archer*.

DISTRIB. Antarctic Islands, New Zealand.

9. **Dicranum angustifolium** (Hook. fil. et Wils.); caule longiusculo, foliis confertis suberectis e basi lanceolata longe setaceis integerrimis apice siccitate flexuosis, nervo angusto excurrente. (TAB. CLXXII. Fig. 2.)

HAB. In bogs: Mount Wellington, *Gunn, Oldfield.* (Barren specimen only.)



Nearly allied to *D. tenuifolium* (Hook. fil. et Wils. Fl. Antart. t. 152. f. 7).—*Leaves* erect, not falcate, longer, of firmer texture; nerve well defined, less capillary at the apex; alar cellules subquadrate, coloured.—In the lurid hue and general aspect it resembles *Didymodon longifolius*, var. *penicillatus* (Fl. Antart.).—PLATE CLXXII. Fig. 2: 1 and 2, leaves:—*magnified*.

10. **Dicranum Starkii?** (Web. et Mohr, Bot. Tasch. 189).—*Br. et Schimp. Br. Eur. t. 64.*

HAB. Brown's River. (*Oldfield*, 326 f.) (Barren and dwarf specimens only.)

DISTRIB. Europe.

*Leaves* lanceolate-setaceous, entire; nerve narrow, well defined.

11. **Dicranum Sphagni?** (Wahlenb. Fl. Lapp. 337).

HAB. (Barren specimen.) (*Gunn.*)

DISTRIB. Europe, America?

*Stem* 1 inch long. *Leaves* yellowish, subulate-lanceolate, entire; nerve strong, excurrent.

12. **Dicranum (Leptotrichum) ferrugineum** (Mitten, in Journ. Linn. Soc. ined.); "dioicum, caulis caespitosis radiculis ferrugineis dense intertextis, foliis e basi erecta ovali-oblonga sensim attenuatis patentibus integerrimis nervo percurrente cellulis basi utrinque ad margines pluribus oblongis quadratisque parallelogrammaticis superioribus inæqualibus perichætialibus conformibus, theca in pedunculo rubro erecta globoso-ovata, operculo conico-rostrato, peristomio e dentibus latis rubris dicranoidis, annulo latiusculo composito." (TAB. CLXXII. Fig. 1.)

HAB. On the ground: plain near Cumming's Head, Western Mountains, *Archer*.

"Whole plant dull ferruginous-green. *Stems* from half an inch to 1 inch in height.—In general appearance it has some resemblance to *D. Jamesoni* (Tayl.), but it is smaller, compactly caespitose, and interwoven with intensely ferruginous radicles. The seta is about 3 lines long, rather stout, pale-red. The small, subglobose, erect capsule distinguishes it readily from its allies." *W. Mitten, l.c.*—PLATE CLXXII. Fig. 1; 1 and 2, leaves; 3, capsule and calyptra; 4, teeth:—*all magnified*.

13. **Dicranum Tasmanicum** (Hook. fil. Ic. Pl. t. 248); dioicum, caule elongato, foliis laxiusculis patentibus lanceolato-oblongis obtusis canaliculatis integerrimis apice concavis evanidinerviis siccitate incurvis crispulis, capsula erecta turbinata macrostoma, operculo longirostri.—Dichodontium, *Schimper* (*vid. Bryol. Europ.*). *Didymodon*, *Mitten*, in Journ. Linn. Soc. ined.

HAB. Wet cliffs. (*Gunn*, 1607.) (*Oldfield*.) Fossiliferous limestone: Meander River, *Archer*.

DISTRIB. New Zealand.

#### Gen. XI. BLINDIA, *Br. et Sch.*

*Peristomium* simplex; *dentes* 16, lanceolati, remote articulati, keves, apice hic illic pertusi vel bifidi, intus leviter trabeculati, purpurei, cartilaginei. *Capsula* exannulata, e collo tumido truncato-sphærica, subpyriformis, solida, sicca vacua turbinata. *Operculum* rostratum. *Calyptra* infra operculum producta, cucullata, fere usque ad apicem fissa, primo basi angularis. *Folia* dicranoides, areolatione ad angulos basilares valde dilatata, quadrata, aurantiaca. *Flores* dioici, terminales, antheridia majora.—*Plantæ plus minus elata, dense caespitosa; caule filiformi, fragili, iterum dichotome ramoso, parce radiculoso.*

1. **Blindia acuta** (*Br. et Sch. Bryol. Europ. t. 114*); dioica, foliis confertis erecto-patentibus subsecundis rigidulis nitidis e basi concava oblongo-lanceolata nervo excurrente lineari-subulatis, perichætialibus vaginantibus superne patentibus, capsula in seta brevi globoso-pyriformi, peristomii dentibus purpureis siccitate erecto-patentibus.—*Weissia acuta*, *Hedw. Musc. Frond. t. 35.*



Var. *β. curviseta*; capsula subrotunda, seta arcuata crassiore, peristomii dentibus crebre articulatis, operculo brevius rostellato.—Weissia acuta, var. *β*, *Fl. Antarct.* p. 98.

HAB. On rocks: Johnny's Creek. (*Oldfield*, 135.) On stones: rivulet near Cumming's Head, Western Mountains, *Archer*.

DISTRIB. Falkland and Hermite Islands.

## Gen. XII. CAMPYLOPUS, *Bridel*.

*Peristomium* Dicrani. *Capsula* in pedicello arcuato inter folia comalia demissa, ovalis, æqualis vel gibba, striata; *operculo* oblique rostrato. *Annulus* duplex, revolubilis. *Calyptra* cucullata, basi fimbriata.—Fructus sæpius aggregati. Folia nervo lato dorso plus minus lamellato instructa, lanceolato-setacea. Florescentia dioica.

1. **Campylopus introflexus** (Hedw. Sp. Musc. t. 29); caule ramoso, foliis imbricatis e basi lata concava marginibus pellucida acuminato-lanceolatis piliferis, nervo lato, pilo spinuloso divaricato, capsula obovata inequali.

HAB. Abundant on dry ground and in swamps, *J. D. II.* Georgetown. (*Gunn*, 1584 a.) (*Lawrence*, 4.) (*Stuart*.) Back River. (*Oldfield*, 229.) On logs and on the ground: Cheshunt, *Archer*.

DISTRIB. Falkland and Campbell's Islands, Australia, New Zealand.

2. **Campylopus clavatus** (Brown); caule dichotomo fasciculato, foliis lanceolato-acuminatis piliferis solidinerviis strictis aureis, capsula pendula striata.—*Schwægr. Suppl.* t. 255 a. (Dicranum).—*W. Mitten*, l. c.

HAB. Tasmania, *Brown*, *G. Sieber*, *Oldfield*.

DISTRIB. New Zealand; found in all the islands.

"This species entered into the composition of Hornschuch's *D. pudicum*, being intermixed with the stems of *D. introflexum*."—*W. Mitten*, l. c.

3. **Campylopus insititius** (Hook. fil. et Wils.); caule rigidulo interrupte comoso subgracili, foliis erecto-patentibus subrecurvis siccitate incurvis, caulinis lanceolato-subulatis canaliculatis muticis, comalibus lanceolato-acuminatis recte piliferis latinerviis dorso elamcllatis, perichæcialibus ovato-lanceolatis sensim piliformi-acuminatis, seta pallida, capsula elliptica subæquali vix strumosa. (TAB. CLXXII. Fig. 3.)

HAB. Southport, *Stuart*. Bogs: in gullies about Brown's River; common. (*Oldfield*, 305-8.)

Stem 1-3 inches long, blackish below. Leaves with a short pellucid base; areolæ oblong-elliptical. Peristome red; teeth distantly barred, striated, colourless at the apex.—Differs from *C. introflexus* in the form and texture of the leaves, capsule, and peristome.—PLATE CLXXII. Fig. 3; 1, portion of stem and capsule; 2 and 3, leaves; 4, capsule; 5, calyptra; 6, teeth:—all magnified.

(This appears to me to be identical with Brown's *C. clavatus*, *W. Mitten*.)

4. **Campylopus capillatus** (Hook. fil. et Wils.); caule gracilente rigidiusculo rufo-tomentoso, foliis erecto-patentibus subsecundis subrecurvis siccitate laxis subflexuosis, caulinis e basi ovato-lanceolata repente subulato-setaceis latinerviis dorso sublamcllatis apice subintegris inferne pellucidis, perichæcialibus vaginantibus membranaceis apice setiformi-attenuatis, capsula subelliptica leptoderma, calyptra brevi breviter fimbriata.—Dicranum pyriforme, *Schultz*; *Mitten in Journ. Linn. Soc. ined.* (TAB. CLXXII. Fig. 4.)

HAB. Bogs: Brown's River, with the preceding species. (*Oldfield*, 305-8.) South Port, *Stuart*.

Allied to *Dicranum nivale* (*C. Mueller*), and to *C. torfucens* (*Br. and Schimper*).—Stem 1-2 inches or more. Leaves bright-green, glossy; areolæ quadrate, at the base rectangular and pellucid. Setæ pale. Capsule almost



symmetrical. *Peristome* red. *Spores* small.—PLATE CLXXII. Fig. 4; 1, leaf; 2, capsule and calyptra; 3, ditto, with calyptra removed; 4, teeth:—*all magnified.*

5. **Campylopus bicolor** (Hornsch. in Musc. Sieb. n. 9); foliis strictis confertis lanceolato-subulatis obtusis apice concavis.—*Fl. N. Zeal. p.* 69.

HAB. (Barren specimen only.) (*Gunn*, 13.)

DISTRIB. New Zealand, Australia.

6. **Campylopus torquatus** (Mitten, in Journ. Linn. Soc. ined.); "*C. pyriformi* omnibus partibus maxime similis sed foliis a parte inferiore magis gradatim subulatis et lamina altiore a nervo distinguenda, cellulis in parte laminæ superiore quadruplo minoribus, foliis perichætialibus internis basi tenerioribus, pedunculo siccitate spiraliter torto."—*Campylopus pallidus*, *ex parte* Hook. *fil. et Wils. Fl. N. Zeal.* ii. p. 68. t. 84. f. 3. *Dicranum flexuosum*, *C. Mueller*, in *adnot. ad Muscos Mossmanianos*, *Bot. Zeit.* 1851, p. 551. *D. Campylopus torfaceus*, *Mitten*, in *Hook. Kew Miscel.* 1856, p. 257. *D. Campylopus torquatus ejusd.*

HAB. West-end Rivulet, Cheshunt, on decayed logs, *Archer*.

DISTRIB. New Zealand, Australia.

"So very much does this species resemble *D. pyriforme* (*Campylopus*), Schultz, that it may readily be passed over as a state of that species, having the same soft appearance. The species referred to in the 'Flora of New Zealand' as the typical form, gathered by Professor Jameson in the Andes of Quito, is a more robust species, with stiffer, less finely attenuated leaves, and a capsule rough at the base. *Dicranum nodosum*, Beauv. in Herb. Hook., is a much larger Moss, with leaves having a longer base, stouter nerve, and stiffer habit; it is in all probability synonymous with *Campylopus nivalis*, Brid. If *Campylopus* could be defined so as to distinguish it from *Dicranum*, there would be no necessity to alter the name of the present species, but it seems impossible to separate them in an extensive herbarium, notwithstanding the difference in the aspect of some of the species; and there being a *Dicranum pallidum* from North America previously published by Bruch and Schimper, an alteration has become unavoidable."—*Mitten, l. c.*

#### Gen. XIII. TREMATODON, *Richard.*

*Peristomium* simplex; *dentes* 16, lanceolati, in crura duo inæqualia fissi, articulati, strigillati et granulati. *Calyptra* inflato-cucullata. *Capsula* apophysi longa attenuata instructa, cernua, oblonga, annulata. *Operculum* longirostre.—*Habitus dicranoides*. *Folia angusta*.—*Fl. N. Zeal. p.* 69. (*W. Mitten*.)

1. **Trematodon flexipes** (Mitten, in Journ. Linn. Soc. ined.); "dioicus?, cæspitosus, caule breviusculo, foliis erecto-patentibus lanceolato-subulatis integerrimis nervo lato totam fere folii partem superiorem occupante, perichætialibus latis vaginantibus, theca in pedunculo brevi gracili flexuoso stramineo suberecta rufo-fusca, collo pallidore æquilongo, operculo curvirostrato, peristomio e dentibus rubris dicranoides, annulo composito." (TAB. CLXXII. Fig. 6.)

HAB. On the ground: plain near Cumming's Head, Western Mountains, *Archer*.

"Very nearly resembling *T. brevicollis*, but with leaves in which the nerve occupies the whole of the upper three-fourths, the seta flexuose, and the peristome with distinctly cleft teeth." *Mitten, l. c.*—PLATE CLXXII. Fig. 6; 1, leaf; 2, perichætium; 3, capsule and calyptra; 4, teeth:—*all magnified.*

#### Tribe VI. TRICHOSTOMEÆ.

#### Gen. XIV. DESMATODON, *Bridel.*

*Peristomium* simplex; *dentes* 16, bi-trifidi; *crura* tetragona, remote articulata, granulosa, plerumque





articulationibus singulis connexa, humida erecta, sicca incurva vel sinistrorsum subconvoluta, paulisper hygroscopica. *Calyptra* cucullata.—Habitus *Trichostomi*. Florescentia *monoica*, fl. masc. *axillaris, gemmaformis*.

1. **Desmatodon nervosus** (Br. et Schimp. Bryol. Eur. t. 132); caule humili, foliis patentibus siccitate inflexis vel convolutis ovali-oblongis apiculatis concavis margine revolutis, nervo valido superne incrassato spongioso excurrente, capsula ovali-oblonga erecta exannulata, operculo suboblique conico-rostellato, peristomio dentibus inæqualibus.

HAB. On dry earth, banks, etc., abundant, *J. D. H.*; Cheshunt, *Archer*.

DISTRIB. New Zealand, Europe, America.

Dr. Hooker's specimen has the peristome longer than usual, approaching to that of *Tortula*. Nearly allied to *Tortula recurvata* (Hook.), but the leaves are shorter and more thickly nerved.

#### Gen. XV. TORTULA, Schreb.

*Peristomium simplex*; *dentes* 32, longissimi, filiformes, sinistrorsum contorti, hygroscopici, basi membrana brevi vel in tubum producta coaliti. *Capsula* erecta, oblonga, annulata. *Operculum* conicum, oblique subulatum.

1. **Tortula Knightii** (Mitten); "monoica, habitu statura coloreque *T. Northiana* simillima, foliis siccitate crispatis humido patentibus e basi paululum latiore subovata lanceolatis apice acuminatis, comalibus sensim ad apicem angustatis lanceolatis marginibus undulatis integerrimis nervo concolore excurrente mucronatis, cellulis basi hyalinis elongatis utrinque ad margines altiore quam in medio adscendentibus subito in minutas virides obscuras transeuntibus, perichæcialibus longioribus paululo latioribus, theca in pedunculo rubro cylindrica, operculo subulato, theca diuidio brevior peristomio et flore masculo *T. Northiana*."—*Mitten, in Journ. Linn. Soc. ined.* *T. cæspitosa*, var., *Hook. fl. et Wils. in Fl. N. Zeal. p. 70.* (TAB. CLXXII. Fig. 11.)

HAB. Wellington Falls, Mount Wellington, *Mossman*.

DISTRIB. New Zealand.

"Distinct from *T. Northiana* (Grev.) = *T. cæspitosa* (Schwægr.) in the much narrower leaves, with undulated margins." *Mitten, l. c.*—PLATE CLXXII. Fig. 11; 1 and 2, leaves; 3, capsule; 4, ditto, with operculum removed; 5, male flower:—*all magnified.*

2. **Tortula recurvata** (Hook. Musc. Exot. t. 130); monoica, caule humili, foliis patentibus siccitate erectis inflexis ligulato-lanceolatis concaviusculis nervo crasso excurrente apiculatis margine revolutis, seta elongata gracili, capsula oblonga suberecta, annulo simplici, operculo conico-subulato.

HAB. On wet ground: Mount Dromedary. (*Oldfield, 335.*)

DISTRIB. South Africa.

Nearly allied to *Desmatodon nervosus*, twice as tall, and of more slender habit.—*Leaves* almost ligulate, the nerve not so much thickened upwards. *Seta* very pale reddish, 1 inch long. *Capsule* elongated, tapering at the base and in the upper part, pale reddish-brown. *Peristome* twisted, and perfectly conformable to the genus.

3. **Tortula torquata** (Taylor); foliis confertis erecto-patentibus siccitate spiraliter arctaque contortis lanceolatis acuminatis integerrimis margine revolutis, nervo valido subexcurrente, capsula erecta oblonga, operculo subulato.—*Taylor, in Lond. Journ. Bot. v. p. 50*; *Mitten, in Journ. Linn. Soc. ined.*

HAB. Cheshunt, *Archer*.

4. **Tortula Australasiæ** (Hook. et Grev. in Brewst. Journ. Sc. i. 301. t. 12); caule breviusculo



subsimplici, foliis lineari-lanceolatis acutis patentibus subrecurvis siccitate crispis tortilibus carinatis margine subreflexis nervo rubello percursis, capsula ovato-cylindracea, operculo brevi-rostrato.

Var. foliis laxioribus. (*Oldfield*.)

HAB. Hobarton, on the ground, *Iyall*; west side of Cataract, Launceston, *Archer*.

DISTRIB. New Zealand, Australia.

5. **Tortula calycina** (Schwægr. Suppl. t. 119); caule brevissimo subramoso, foliis lanceolatis subundulatis margine planis crassinerviis, perichætalibus elongatis vaginantibus, seta longissima, capsula elliptico-oblonga suberecta, operculo longissimo subulato.—*T. flexuosa*, var.?, *Hook. Musc. Exot. t. 125*.

Var. foliis longioribus acutioribus attenuatis. (*Gunn*.)

HAB. Hobarton; on stones and at the foot of trees, dry hills: Brown's River, etc., *Iyall*. (*Oldfield*, 331, 132.) (*Gunn*, 1620, 1587.) Port Sorrell, *Archer*.

DISTRIB. New Zealand, Australia, East Indies.

6. **Tortula pungens** (Hook. fil. et Wils.); dioica, caule longiusculo subramoso rigidulo, foliis erecto-patentibus subrecurvis siccitate crispato-tortis lanceolato-ligulatis margine revolutis dorso papillatis nervo valido concolore in mucronem lævem breviusculum excurrente, perichætalibus longioribus erectis lanceolatis membranaceis subvaginantibus, capsula cylindrica curvula.—*T. luteola*, *Mitten*, in *Kew Miscel.* 1857, p. 258! *T. Tasmanica*, *Hampe*, in *Linnaea*? (TAB. CLXXII. Fig. 7.)

HAB. Common on rocks: Grass Tree Hill, etc., *J. D. II.*, *Gunn*; on a high hill called the Dromedary, Johnny's Creek. (*Oldfield*, 59, 317, 115.) Cheshunt, *Archer*.

DISTRIB. Australia.

Nearly allied to *T. pilifera* (Hook. Musc. Exot. t. 12).—*Leaves* wider, not piliferous, less dilated below, more crisped when dry. *Perichætal leaves* less sheathing. *Seta* longer (1 inch), reddish below, yellowish above-flexuose.—PLATE CLXXII. Fig. 7; 1, leaf; 2, capsule; 3, calyptra:—*all magnified*.

7. **Tortula Antarctica** (*Barbula*, Hampe, C. Mueller, Syn. Musc. i. 638); synoica, laxe cæspitosa, caule inferne radiculoso subgracili longiusculo, foliis erecto-patentibus subrecurvis siccitate laxè tortis lanceolato-ligulatis obtusis canaliculato-carinatis nervo crasso rubente in aristam hyalinam spinulosam producto margine revolutis basi pellucide reticulatis superne dense minute areolatis chlorophyllosis tenuissime papillosis, capsula in pedicello stricto rubenti-stramineo erecta.—*T. Muelleri*, *Fl. Antarct. p. 103*; *Fl. N. Zeal. p. 71*. *Syntrichia princeps*, *De Not. ex parte Mitten*, in *Journ. Linn. Soc. ined.* (TAB. CLXXII. Fig. 8.)

HAB. Hobarton, *J. D. II.*; Port Sorrell, *Archer*.

DISTRIB. Falkland Islands, New Zealand.

*Leaves* fawn-coloured, more lax and more twisted when dry than in *T. Muelleri* (Br. et Sch.), to which it is more nearly allied than to *T. levipila* (Schwægr.), which has spatulate leaves.—PLATE CLXXII. Fig. 8; 1, leaf; 2, capsule; 3, calyptra:—*all magnified*.

8. **Tortula cuspidata** (Hook. fil. et Wils.); synoica, caule longiusculo crassiusculo subramoso, foliis confertis erecto-patentibus subrecurvis siccitate incurvis ligulatis obtusis margine revolutis nervo crasso rubente in mucronem longiusculum lævem producto basi pellucide reticulatis superne minutissime densius areolatis papillosis, capsula in pedicello rubello torto erecta.—*Syntrichia princeps*, *De Not. ex parte Mitten*, in *Journ. Linn. Soc. ined.* (TAB. CLXXII. Fig. 9.)

HAB. Moist earth, in woods, on Mount Wellington, *Oldfield*; Kangaroo Bottom, *J. D. II.*; Cheshunt, *Archer*.

DISTRIB. New Zealand.



*Leaves* more crowded than in *T. Antarctica*, wider above; areolation less opaque; colour green, tinged with red.—Closely allied to *T. Muelleri*. *Leaves* narrower, less appressed when dry.—PLATE CLXXII. Fig. 9; 1, leaf; 2, capsule; 3, ditto, with operculum removed; 4, calyptra:—*all magnified*.

9. ***Tortula rubella*** (Hook. fil. et Wils.); monoica, caule breviusculo parce ramoso, foliis confertis erecto-patentibus subrecurvis siccitate conduplicato-incurvis oblongis subspathulatis obtusiusculis margine superne planis inferne revolutis, nervo rubro crasso in pilo hyalino scabriusculo excurrente, seta longiuscula gracili, capsula subcylindrica leptoderma, peristomii tubo basilari longiusculo.—*Syntrichia princeps*, *ex parte Mitten*, in *Journ. Linn. Soc. ined.* (TAB. CLXXII. Fig. 10.)

HAB. On banks, rare: Glen Leith, *J. D. H., Gunn*; Port Sorrell, *Archer*.

DISTRIB. New Zealand. (*Knight*, 87.)

Closely allied to *T. lævipila* (Schwægr.).—Habit more slender. *Antheridia* naked, axillary. *Leaves* narrower, more erect, scarcely recurved; areolæ smaller, dense and opaque. *Seta* more slender, red, nearly 1 inch long. *Peristome* tubular halfway.—Omitted in the New Zealand Flora.—PLATE CLXXII. Fig. 10; 1, leaf; 2, apex; and 3, section of ditto; 4, capsule and calyptra; 5, ditto, with calyptra removed:—*all magnified*.

10. ***Tortula papillosa*** (Wils.); “dioica, cæspitulosâ, foliis obovatis valde concavis patentibus siccitate marginibus involutis papillosis, nervo superne granulifero in mucronem vel pilum excurrente, theca operculo tertio brevior, in pedunculo breviusculo crassiusculo cylindrica peristomii parte tertia inferiore tubulosa.”—*Mitten*, in *lit.* *Tortula papillosa*, *Wils.*; *Spruce*, in *Lond. Journ. Bot.* 1845; *Wils. Bryol. Brit.* p. 135.

HAB. On trees, *Gunn*.

DISTRIB. Probably throughout the temperate parts of the world, Australia, the Cape of Good Hope, Britain, and Canada.

“This small species is readily distinguished by the green granules on the surface of the nerve in the upper portion of the leaf, and when dry by the involution of the margins.”—*Mitten*, in *lit.*

11. ***Tortula mnioides?*** (Schwægr.); foliis laxè imbricatis patulis siccitate crispis undulatis ovato-lanceolatis acuminatis pellucido-marginatis.—*Schwægr. Suppl. t.* 310; *Mitten*, in *Journ. Linn. Soc. ined.*

HAB. On logs, in copses: Cheshunt, *Archer*; Mount Wellington, *Mossman*.

DISTRIB. New Zealand, and, if identical with Schwægrichen’s Moss, which it appears to be, South America.

#### Gen. XVI. TRICHOSTOMUM, *Hedw., Brid. (ex parte)*.

*Peristomium* simplex; *dentes* 32, plus minus perfecti, per paria approximati, filiformes, tetragoni, granulosi, crebre articulati, intorti. *Capsula* oblonga, erecta. *Calyptra* cucullata.—*Florescentia monoica vel dioica*, fl. masc. *gemmaformis*.

1. ***Trichostomum elongatum*** (Hook. fil. et Wils.); monoicum, caule longiusculo rigidulo simplici, foliis laxis erecto-patentibus subsecundis parum flexuosis rigidulis e basi elliptica majuscula amplexicaule membranacea pellucida longissime subulato-setaceis solidinerviis canaliculatis granuloso-serrulatis, seta elongata, capsula elongata cylindrica erecta, operculo conico-subulato. (TAB. CLXXIII. Fig. 1.)

HAB. Moist clayey soil: Mount Wellington, Grass Tree Hill, hills about Hobarton, *J. D. H., Fraser*; Cheshunt, *Archer*.

DISTRIB. New Zealand.

Allied to *T. longifolium* (Brid.), distinguished by the pellucid margin of the large, sheathing, elliptical base of the leaf.—*Seta* 1 inch long, reddish. *Capsule* pale-brown long, cylindrical. *Annulus* large. *Operculum* half as



long as the capsule. *Male flower* often terminal on a branch.—Omitted in the New Zealand Flora.—PLATE CLXXIII. Fig. 1; 1, leaf; 2, capsule; 3, ditto, with operculum removed; 4, teeth and annulus:—*all magnified.*

2. **Trichostomum cylindricarpum** (C. Mueller); “dioicum!; cæspites humiles, setoso-foliosi, rigidi, sordide lutescentes; caules intertexti, subsimplices, densifolii, robustiores, subgraciles, breviusculi; folia caulina dense conferta, longa, setiformia, sicca subcrispate subsecunda, e basi longiuscule vaginante angusta, inferne laxiuscule, superne sensim rotundate incrassate areolata, pallida, tenera, in subulam elongatam flexuosam scabriusculam summo apice denticulatam acutam sensim attenuata, nervo latiusculo subulam totam superiorem occupante; perichætialia parum latiora, longius vaginantia; theca in pedunculo elongato gracili stricto lævi erecta, angustissime perfecte cylindrica, curviuscula.”—*Mitten, in lit.* *Leptotrichum cylindricarpum*, C. Mueller, *Bot. Zeit.* 1851, p. 551.

HAB. Amongst rocks: Cataract, near Launceston, *Mossman.*

3. **Trichostomum laxifolium** (Hook. fil. et Wils. Fl. N. Zeal. p. 72); caule brevissimo simplici, foliis distantibus patulis flexuosis e basi ovata amplexicauli longissime subulato-setaceis solidinerviis canaliculatis integerrimis, capsula oblonga subobliqua, operculo conico-subulato.—*Dicranum flexifolium*, *Hook. Musc. Erot. t.* 144.

HAB. On hills about Hobarton, on moist clayey ground. (*J. D. H.*) (*Oldfield.*)

DISTRIB. New Zealand, South Africa, South America.

4. **Trichostomum (Leptotrichum) Oldfieldii** (Mitten, in Journ. Linn. Soc. ined.); “monoicum! habitu *Leptotrichi affinis*, foliis e basi lata oblongo-ovata erecta longe subulatis patentibus apice parcissime denticulatis cellulis angustis elongatis sensim superne brevioribus firmis nervo subulam superiorem totam occupante canaliculatis, perichætialibus basi longiore latioreque elliptico-convolutis, theca in pedunculo elongato ætate rubro cylindracea arcuata, flore masculo gemmæformi brevifolioso in foliorum caulinarum axillis.”

HAB. On the ground. (*Oldfield*, 154.)

“Very near to *Leptotrichum affine*, C. Mueller, in size and appearance, but with leaves about twice as wide at the oblong base, and thence subulate.”—*Mitten, l. c.*

5. **Trichostomum (Leptotrichum) australe** (Mitten, in Journ. Linn. Soc. ined.); “monoicum!, caule elongato ramoso cæspitoso, foliis erecto-patentibus elongato-ovalibus ellipticisve cellulis elongatis areolatis nervo in subulam setaceam apice parce denticulatam longe excurrente, perichætialibus elongatis convolutis apice abruptis nervo longe capillari excurrente, theca in pedunculo circiter semiunciali pallide fusco ovali erecta fusca, flore masculo in ramo elongato e basi caulis fertilis egrediente terminali.”—*Lophiodon strictus*, *Hook. fil. et Wils. in Fl. Antarct. Crypt. p.* 18. t. 59. f. 2. *Didymodon longifolius*, var. 3 *penicillatus eorund. l. c. p.* 102. *D. longifolius et Distichium capillaceum*, in *Fl. Novæ Zelandiæ enumerata, etiam huic speciei pertinent.*

HAB. Cheshunt, *Archer.*

DISTRIB. New Zealand, Falkland, Lord Auckland's, and Campbell's Islands.

“This most distinct Moss has been wrongly described with dioicous inflorescence and striated leaves. In the specimens collected by Mr. Archer the stems are 4 inches high, but the seta is not longer than in the shorter states of the plant. The capsules in all the specimens are too old to afford an idea of the perfect peristome, but in every other particular the structure is similar to that observable in the species of *Leptotrichum*, and not at all different from that of *Weissia stricta*, *Hook. fil. et Wils. Fl. Antarct. Crypt. p.* 98. t. 152. f. 4, which is also referable to the same genus.”—*Mitten, l. c.*





Gen. XVII. DIDYMODON, *Br. et Schimp.*

*Peristomium* breve, simplex; *dentes* 16, lineari-lanceolati, secus lineam mediam integri vel pertusi et bifidi, tenerrimi, fugacissimi. *Capsula*, etc., ut in *Trichostomo*.

1. **Didymodon papillatus** (Hook. fil. et Wils. Fl. N. Zeal. p. 73. t. 85. f. 2); laxe cæspitosus, caule elongato rigidulo subramoso, ramis filiformibus erectis, foliis trifariis patenti-recurvis ovato-lanceolatis acuminatis carinatis subsolidinerviis integerrimis utrinque papillatis, perichæcialibus convolutis, capsula oblonga crecta, operculo conico-subulato.

HAB. On the ground: New Country, *J. D. II.*; Hobarton, *Oldfield*; the Hummocks, *Archer*.

DISTRIB. New Zealand, Swan River, Australia.

Gen. XVIII. CERATODON, *Bridel.*

*Peristomium* simplex; *dentes* 16, lanceolati, ad basin fere bicrures, cruribus æqualibus subulatis, basi dense superne remote articulati, articulationibus prominulis, humiditate conniventes, siccitate spiraliter incurvi. *Capsula* suberecta, oblonga, collo brevi, striata, sicca angulosa, pachyderma. *Annulus* duplex, revolubilis. *Operculum* conico-rostratum. *Calyptra* cucullata.—Florescentia dioica. Habitus inter *Dicranoideum* et *Trichostomoideum ludens*.

1. **Ceratodon purpureus** (Bridel, Br. Univ. i. 480); caule dichotome ramoso, foliis oblongo-lanceolatis carinatis margine reflexis dorso papillatis patentibus siccitate subtortilibus nervo valido subexcurrente, perichæcialibus vaginantibus acuminatis, capsula in pedicello purpureo suberecta oblonga subincurva striata strumulosa siccitate cernua subhorizontali, operculo conico, peristomii dentibus in membrana basilari sat producta bifidis margine pallidioribus.—*Br. et Sch. Bryol. Eur. t.* 189. *Dicranum purpureum*, *Hedw. Sp. Musc. t.* 36.

Var. 2; foliis suberectis confertis siccitate strictioribus, nervo crassiore, seta elongata.

HAB. Moist burnt ground: St. Patrick's River. (*Gunn*, 1616.) (*Oldfield*, 312, 332, 129.) Back River Gully, above Wellington Falls. (*Oldfield*, 310.) New Norfolk, *J. D. II.* On rocks and stones: Western Mountains, *Archer*. Var. 2. On cow-dung, in bogs: North-west Bay, *Oldfield*.

DISTRIB. All parts of the world.

2. **Ceratodon stenocarpus** (Br. et Schimp. in Monogr. Ceratodon. p. 4, memoratus); dioicus, habitus *C. purpurei*, capsula in pedunculo flavido plus minus cylindrica cernua angulata evidentius strumosa, peristomii dentibus brevioribus angustioribus fuscis subunicoloribus ad basin usque fere fissis.

HAB. On the ground; frequent in the bush. (*Oldfield*, 70.)

DISTRIB. South Africa, Nilgherry Mountains, Mexico, Columbia.

## Tribe VII. HEDWIGIACEÆ.

Gen. XIX. HEDWIGIA, *Ehrh.*

*Peristomium* nullum. *Capsula* globosa, immersa vel longius pedicellata, brevicolla, exannulata. *Operculum* subconicum vel conico-rostratum. *Calyptra* minuta, conica vel cucullata. *Flores* monoici vel dioici, masculi gemmæformes, axillares.—Folia *enervia*, *concava*.

§ 1. EURYSTOMUM.—*Rhizoma repens, subterraneum. Folia laxè reticulata. Spora prægrandes.*

1. **Hedwigia repens** (Hook. Musc. Exot. t. 106); rhizomate repente subterraneo, foliis surculi



sterilis patulis subortundis acuminulatis, fertilis conniventibus majoribus ovatis longe acuminatis apice attenuatis integerrimis laxe reticulatis albescentibus membranaceis, capsula immersa in vaginulam brevissimam sessili sphaerica ore dilatato, operculo conico-apiculato, calyptra minuta conica valde fugace, sporis praegrandibus.—*Fl. N. Zeal.* p. 92. *Leptangium repens*, Mitten, in *Journ. Linn. Soc. ined.*

HAB. Port Sorrell, and north side of Cataract, Launceston, *Archer*.

DISTRIB. New Zealand.

§ 1. **SCLEROSTOMUM**.—*Capsula scleroderma, siccitate striata; operculo rostrato. Calyptra cucullata. Folia coriacea, rigida. Florescentia dioica.*

1. **Hedwigia Humboldtii** (Hook. Musc. Exot. t. 137); caule erecto pinnatim ramoso, foliis imbricatis obovatis concavis piliformi-acuminatis rigidis coriaceis, seta longiuscula, capsula subglobosa sulcata, operculo rostrato, calyptra cucullata.—*Anictangium*, *Bridel, Br. Univ.; Fl. Antarct.* 135, 415.

Var.  $\beta$ . *australis*; caule brevior, foliis brevibus acuminatis immarginatis, seta brevi.

HAB. On moist trap rocks and in bogs: Mount Wellington, elev. 3000 feet, *J. D. H. Penquite, Gunn. Cheshunt, Archer.*

DISTRIB. New Zealand, Australia, Antarctic Islands, South America, South Africa, Guadeloupe.

§ 2. **HEDWIGIA**.—*Capsula immersa, laevis. Operculum conicum. Calyptra mitraformis. Florescentia monoica.*

2. **Hedwigia ciliata** (Hedw. Musc. Frond. t. 40); laxe caespitosa, caule decumbente subramoso, foliis patentibus siccitate appressis ovatis hyalino-acuminatis acumine papilloso serrato, perichætialibus longioribus filamentoso-ciliatis, capsula immersa sessili, operculo planiusculo, calyptra subpilosa.—*Cryphæa* (*Dichotomaria*) *microcyathica*, *C. Mueller, Bot. Zeit.* 1851, p. 564, *conf. Mitten, in Journ. Linn. Soc. ined.*

HAB. On stones: near Lake Echo, *J. D. H.* On rocks: Cheshunt, *Archer.* Near Launceston, *Mossman.*

DISTRIB. Europe, America.

3. **Hedwigia imberbis** (*Hedwigidium*, Br. et Schimp. Bryol. Eur. t. 274); caespitosa, caule humili subramoso, foliis patentibus siccitate appressis ovatis acuminatis margine revolutis, perichætialibus vaginantibus lanceolato-acuminatis, capsula immersa pedicellata subglobosa, operculo conico, calyptra nuda.

Var.  $\beta$ . *Drummondii*; foliis confertioribus minus acuminatis, operculo rostellato.—*Schistidium Drummondii*, *Taylor, Lond. Journ. Bot.* 1846, p. 57 (*foliis prorsus enerviis!*).

HAB. On dry stones: near Hobarton, *J. D. H.* On rocks: Cheshunt, *Archer.*

DISTRIB. Swan River, Australia, Europe.

Our specimens agree with those from Swan River, except that the leaves are less spreading, and not subsecund.

### Tribe VIII. GRIMMIA.

#### Gen. XX. GRIMMIA, *Auct.*

*Peristomium simplex*; dentes 16, majusculi, lanceolati, trabeculati, cribrosi, simplices vel apice bifidi, siccitate reflexi. *Calyptra* mitraformis, basi lobata vel obliqua, cucullata.

§ 1. **SCHISTIDIUM**.—*Calyptra lobata, solo operculo valde dilatato insidens. Capsula immersa. Operculum una cum columella deciduum. Flores monoici.*

1. **Grimmia apocarpa** (Hedw. Musc. Frond. t. 39); laxe caespitosa, foliis e basi erecta patentibus



ovato-lanceolatis margine reflexis apice hyalinis evanidinerviis, perichæcialibus latioribus, capsula immersa elliptica pachyderma exannulata.

Var. foliis muticis.

HAB. Rocks: New Country, *J. D. II.* Bed of stream at foot of Mount Nelson, *J. D. II.* Coal River, Richmond, on stones. (*Oldfield*, 143, 66.) Mount Wellington. (*Gunn*, 1609.) On stones: the Hummocks; and on rocks: Meander River and Jackey's Plain Creek, near Cheshunt, *Archer*.

DISTRIB. New Zealand, Europe, America.

§ 2. GRIMMIA.—*Calyptra lobata vel cucullata. Capsula in pedicello curvato emersa vel exserta.*

2. **Grimmia pulvinata** (Hook. et Tayl. *Musc. Brit.* 38. t. 13); dense pulvinata, foliis lanceolato-oblongis superne carinatis repente piliferis evanidinerviis margine recurvis, capsula in pedicello arcuato demissa ovali striata, annulo duplice, operculo rostrato, calyptra mitræformi.

Var. *β. Africana*; humilior, capsula brevior, operculo conico mamillato brevissimo, dentibus brevioribus.—*Fissidens pulvinatus*, var. *β.* *Hedw. Sp. Musc.* t. 43. *G. cygnicolla*, *Taylor*.

HAB. On trap rocks: near Glen Leith, *J. D. II.* Seaside, South Port. (*Gunn*, 1692, 8.) (*Oldfield*, 332.) Cheshunt, and on rocks; Port Sorrell, *Archer*.

DISTRIB. New Zealand, Australia, Europe, Africa, America.

3. **Grimmia trichophylla** (Greville, *Scot. Crypt. Fl.* t. 100); dioica, laxè pulvinata, foliis lineari-lanceolatis flexuosis sensim in pilo diaphano sublævi attenuatis siccitate crispulis, capsula in pedicello cygneo subpendula ovali striata siccitate angulosa, operculo conico-rostrato, annulo lato, peristomii dentibus bifidis.

HAB. Mount Wellington, etc., on rocks. (*Gunn.*) (*J. D. II.*) (*Oldfield*, 337 b.) Cheshunt, *Archer*.

DISTRIB. Europe, Asia Minor.

4. **Grimmia funalis** (Br. et Schimp. *Bryol. Eur.* t. 247)?

HAB.? (Barren specimen only.) (*Gunn.*)

§ 3. ORTHOGRIMMIA.—*Capsulæ pedicellus rectus.*

5. **Grimmia leucophæa** (Greville, *Trans. Wern. Soc.* iv. t. 6); dioica, foliis erecto-patentibus siccitate appressis ovato-oblongis concavis piliferis margine planis tenuinerviis, capsula ovalis in pedicello breviter exserto erecta microstoma, operculo recte rostrato, annulo lato, peristomii dentibus bi-trifidis cribrosis.—*G. campestris*, *Hook. Musc. Erot.* t. 129.

HAB. On moist rocks: near Hobarton, *J. D. II.* On stones: the Hummocks, *Archer*.

DISTRIB. Europe, North America, Africa, Australia.

### Gen. XXI. PTYCHOMITRIUM, *Br. et Schimp.*

*Peristomium simplex*; *dentes* 16, e basi lanceolata subulati, in crura inæqualia fissi, viciniis æqualibus. *Calyptra* sulcata, nuda, basi lobata. *Capsula* ovalis vel oblongo-cylindrica, brevicolla. *Operculum* longum, rectirostrum. *Flores* monoici, masculi axillares vel terminales, gemmæformes.

1. **Ptychomitrium acutifolium** (Hook. fil. et Wils.); caule humili incrassato ramoso, foliis confertis patenti-incurvis siccitate intortis lanceolato-subulatis acutis planiusculis solidinerviis basi pellucide areolatis, capsula majuscula ovali erecta annulata, peristomii dentibus breviusculis læviusculis subfissis membrana basilari connexis. (TAB. CLXXIII. Fig. 2.)

HAB. On banks and trap rocks near the Derwent, Glen Leith, very rare, *J. D. H.* On rocks: Port Sorrell, *Archer*.



DISTRIB. South Australia. (*C. Prentice, Esq.*)

*Stem* 2 lines long. *Leaves* crowded, yellowish-green; margin subreflexed; upper areolæ quadrato-punctiform, lower ones rectangular. *Seta* 2 lines, pale. *Annulus* large. *Spores* brownish. *Male flowers* aggregate, gemmæ-form, axillary.—Closely allied to *P. crassinervium* (Schimper), but differs in the peristome, and in the larger areolæ. *P. Drummondii* is smaller, and has no annulus; and from *P. crispata* our Moss differs in the acute tapering leaves.—PLATE CLXXIII. Fig. 2; 1, fruiting specimen; 2, leaf; 3, capsule; 4, teeth; 5, calyptra:—*all magnified.*

2. **Ptychomitrium serratum** (Mitten, in Linn. Soc. Journ. incl.); "*P. polyphylo* minor, foliis patenti-recurvus e basi ovata lanceolatis sensim acutis margine apicem versus serrato inferne recurvo, nervo percurrente, cellulis basi paucis elongatis mox in rotundatis a sese remotiusculis diametro circiter  $\frac{1}{10}$  uncix metientibus transeuntibus, perichæcialibus caulinis similibus, theca in pedunculo quadrilineari ovali-cylindrica, operculo subulato subæquilongo, peristomio dentibus longiusculis rubris asperulis profunde fissis basi geminatim approximatis, calyptra *P. crispata*." (TAB. CLXXIII. Fig. 3.)

HAB. On rocks: north side of the Cataract, Launceston, *Archer.*

In size and habit so nearly resembling *P. acutifolium* as to be readily mistaken for it, but safely distinguished by the serrated leaves, which are shorter and less narrowed towards the apex than those of *P. polyphyllum*. *Mitten, l. c.*—PLATE CLXXIII. Fig. 3; 1, capsule, with calyptra; 2, leaf; 3, teeth:—*all magnified.*

## Gen. XXII. RACOMITRIUM, *Bridel.*

*Peristomium simplex*; *dentes* 16, bi-trifidi; *crura* nunc filiformia, longissima, ad basin usque libera, nunc breviora, lineari-subulata, inæqualia, irregulariter coalita. *Capsula* in pedicello strictiusculo exserta, elliptica oblongave, lævis, ore angustata, annulata. *Operculum* conico-subulatum. *Calyptra* conico-mitræ-formis, ad apicem subulata, basi membranacea pluries fissa, apice solida, papillosa, operculum tegens.—*Florescentia dioica.* *Folia evanidinervia, carinata, margine recurvo.* *Reticulatio ex areolis superne quadratis vel elongato-sinuosis, inferne longioribus, angustis, valde sinuosis.* *Habitus a Grimmoideo ad Hypnoideum transitionem metiens.* *Habitatio terrestris et rupestris.*

1. DRYPTODON.—*Plantæ dichotome ramosæ, innovationibus simplicibus, fastigiatis.*

1. **Racomitrium (Dryptodon) crispulum** (Hook. fil. et Wils. Fl. Antarct. 124. t. 57. f. 9); foliis erecto-patentibus subrecurvis ovato-oblongis acuminatis carinatis margine basi reflexa apice subdiaphanis, nervo continuo, seta perbrevis, capsula elliptico-oblonga, operculo conico-subulato, peristomii dentibus bifidis siccitate reflexis.—*Fl. N. Zeal. p. 75.*

Var. 1; foliis brevioribus muticis.

Var. 2; foliis longioribus muticis.

HAB. Var. 1. On trap rocks near Glen Leith, rare. On stones near Lake Echo, *J. D. H.* Var. 2. St. Patrick's River. (*Gunn, 1608, 1627, 21.*) Rocks: North and South Huon. (*Oldfield, 62.*) On rocks and stones: rivulet near Cumming's Head, Western Mountains, *Archer.*

DISTRIB. Antarctic Islands, New Zealand.

2. RACOMITRIUM.—*Plantæ irregulariter ramosæ, ramulis brevibus, innovationibus haud fastigiatis.*

2. **Racomitrium symphyodon** (*Grimmia*, C. Mueller, Syn. Musc. i. 809); caule gracili elongato, ramulis subfasciculatis gracilibus, foliis patentibus subsecundis siccitate erectis ovato-lanceolatis acuminatis hyaline apiculatis margine inferne recurvis, perichæcialibus acutiusculis, capsula in pedunculo flavido tenuissimo breviusculo cylindrica microstoma, peristomii dentibus brevibus cruribus cohærentibus, calyptra apice scabriuscula.—R. fasciculare, var. 2 and 3, *Hook. fil. et Wils. in Fl. Antarct. p. 96.* *Grimmia*





emersa, *C. Mueller, Bot. Zeit.* 1851, p. 562; *conf. Mitten, in Journ. Linn. Soc. ined.* (TAB. CLXXIII. Fig. 4.)

HAB. On dry stones: at the back of Hobarton, *J. D. II.* On rocks: the Falls, *Archer.* Mount Wellington, *Mossman.*

DISTRIB. Hermite Island, Cape Horn.

PLATE CLXXIII. Fig. 4; 1 and 2, leaves; 3, capsule and operculum; 4, ditto, with operculum removed; 5, teeth; 6, calyptra:—*all magnified.*

3. **Racomitrium heterostichum** (Hedw. *Musc. Frond.* ii. 70. t. 25); caule fasciculatim ramoso, foliis patentibus subsecundis lanceolato-acuminatis in pilum plus minus elongatum hyalinum flaccidum productis sulcatis margine recurvis, areolis superne quadratis, capsula elliptico-cylindracea et obovato-oblonga microstoma, peristomii dentibus profunde bifidis.

Var. *β. alopecurum*; foliis brevipilis, capsula minori brevi-pedicellata. (*Gunn, 1627 b.*) (*Oldfield.*)

Var. *γ. gracilescens*; foliis obtusis. (*Gunn, 1627 a.*)

HAB. On stones and rocks, abundant, *Gunn, Oldfield, etc.*

DISTRIB. Europe, Falkland Islands, New Zealand.

4. **Racomitrium lanuginosum** (Hedw. *Musc. Frond.* iii. 3. t. 2); caule elato fasciculatim ramoso, foliis patentibus recurvis elongatis lanceolato-acuminatis apicem versus membranaceo-marginatis papillosis eroso-dentatis et appendiculatis in pilum hyalinum productis, capsula in pedicello breviusculo scabro minuta ovata, peristomii dentibus in crura filiformia bipartitis.

Var. *pruinosum*; foliis apice inciso-serratis valde incanis.

HAB. Mount Wellington. (Barren specimens.) (*Gunn, 20, 1580.*)

DISTRIB. Falkland Islands, Fuegia, New Zealand, and all parts of the world.

### Tribe IX. ENCALYPTEÆ.

#### Gen. XXIII. ENCALYPTA, Schreb.

*Calyptra* longe cylindrico-campanulata, apice subulata, firma, capsulam omnino tegens. *Peristomium* nullum, simplex, v. duplex; *externum*, dentes 16, subulati; *internum*, membrana tenra dentibus adglutinata in cilia producta. *Capsula* cylindrica, erecta. *Operculum* longirostre.

1. **Encalypta vulgaris** (Hedw. *Sp. Musc.* p. 60); foliis ligulatis evanidinerviis, capsula plerumque gymnostoma, calyptra ad capsulæ collum vel infra producta basi integra.

Var. *β. obtusa*; foliis muticis obtusis.

HAB. On banks? A scrap only, growing with *Tortula pungens* and *T. Australasie.* (*Iyall.*) (*Gunn.*)

DISTRIB. Europe.

2. **Encalypta australis** (Mitten, in *Journ. Linn. Soc. ined.*); "monoica, *E. vulgari* simillima, foliis inferioribus ligularibus, comalibus subelliptico-spathulatis obtusiusculis nervo percurrente dorso apice parce denticulato scabro margine ob papillarum prominentiam erosula, theca cylindrica lævi gymnostoma operculo subulato subæquilonga, calyptra apice lævi."

HAB. Near the Cataract, Launceston, and on the fossiliferous limestone near Cheshunt, *Archer.*

DISTRIB. New Zealand.

Differs from *E. vulgaris* in the less rounded apices of its leaves, and smooth point of the calyptra.—*Mitten, l. c.*



## Tribe X. ORTHOTRICHEÆ.

Gen. XXIV. MACROMITRIUM, *Bridel.*

*Peristomium duplex* vel simplex, interdum 0; *externum* intus sub ore capsulæ adnatum, dentes 16, per paria plus minus approximati, plani, lanceolati; *internum*, membrana multifida lacera. *Calyptra* conico-mitræformis, longitudinaliter plicata sulcatave, basi haud appendiculata, inferne in plures lacinias partita, glabra vel pilosa. *Capsula* ovata, basi attenuata, vix apophysata, æqualis, erecta, exannulata, longipedunculata, pachyderma, ore siccitate sæpius plicis octo contracta. *Operculum* rectum, rostratum.—Folia *multifaria*, lanceolato-oblonga; arcolis *minimis*, *circularibus*, *punctiformibus*. *Caulis repens*; *surculis erectis*, *confertis*.

1. **Macromitrium microstomum** (Hook. et Grev. Brewst. Ed. Journ. Sc. v. p. 114. t. 4); foliis patulis subincurvis ligulato-lanceolatis obtusis apiculatis papillois siccitate crispatis laxè areolatis nervo rubello, capsula ovali lævi apice plicato, calyptra pilosiuscula.

HAB. Hobarton, etc.; rocks, at an altitude of 1400 feet. (*J. D. II.*) (*Gunn*, 29.)

DISTRIB. New Zealand.

2. **Macromitrium Reinwardti** (Schwægr. Suppl. ii. p. 69. t. 173); monoicum, foliis patentibus incurvisculis siccitate crispulis e basi lanceolata anguste acuminatis canaliculatis areolis basi elongatis superne guttulatis, perichætialibus late lanceolatis acuminatis excurrentinerviis, capsula in pedunculo elongato ovata brevicolla lævi ore plicata, peristomii dentibus 16 angustis, calyptra glabra.

HAB. (Specimen very scanty and imperfect.) (*Gunn*.)

DISTRIB. Java.

3. **Macromitrium pusillum** (Mitten, in Journ. Linn. Soc. ined.); "dioicum?, *M. microstomo* simillimum, foliis siccitate spiraliter tortis madore patentibus lineari-lanceolatis apice breviter apiculatis nervo fusco sub apice evanido carinatis integerrimis cellulis basi angustis elongatis superioribus rotundatis diametro circiter  $\frac{1}{30}$  uncie metientibus breviter papillois distinctis, perichætialibus internis brevioribus ovatis acuminatis, theca in pedunculo circiter trilineari ovali plicata, ore intensiore colorato, calyptra nuda." (TAB. CLXXIII. Fig. 5.)

HAB. On stones: Cataract Hill, *Archer*.

Leaves longer and narrower than those of *M. microstomum*, with cells far larger, those of the last-named species having a diameter of  $\frac{1}{30}$  of an inch. *Mitten*, l.c.—PLATE CLXXIII. Fig. 5; 1 and 2, leaves; 3, capsule; 4, calyptra:—*all magnified*.

4. **Macromitrium Archeri** (Mitten, in Journ. Linn. Soc. ined.); "*M. hemitrichodi* simillimum, foliis siccitate tortis subcrispatis madore patentibus inferne ellipticis inde lanceolatis obtusiusculis nervo excurrente carinatis brevissime apiculatis margine minutissime eroso cellulis basi pro spatio brevi elongatis mox in rotundatis transeuntibus papillois apicem versus obscurioribus, perichætialibus brevioribus duplo latioribus acutis, theca in pedunculo tri-quadrilineari elongato ovali sub ore intensiore colorato plicata, peristomio nullo?, operculo subulato, calyptra nuda." (TAB. CLXXIII. Fig. 6.)

HAB. On trees: Cheshunt, *Archer*. On dead branches of trees: Kermandie Rivulet, *Oldfield*.

Fulvous. In size and general appearance scarcely different from *M. hemitrichodes*, to which, at least in part, belongs *M. amœnum*, Hornsch., according to authentic specimens, but in the present the leaves, although agreeing in form, have their cells more widely separated, rather larger, and not obscure, as in *M. hemitrichodes*, in which too the leaves are smoother. *Mitten*, l.c.—PLATE CLXXIII. Fig. 6; 1 and 2, leaves; 3, capsule and calyptra; 4, ditto, with operculum:—*all magnified*.



5. **Macromitrium microphyllum** (Hook. et Grev. in Brewst. Journ. Sc. i. p. 121. t. 6); ramis filiformibus, foliis ovato-lanceolatis patentibus basi carinatis bistriatis pellucidis siccitate strictis appressis, capsula ovali-oblonga subpyriformi læviter sulcata, peristomio brevissimo indiviso.—*Mitten, in Journ. Linn. Soc. ined.*

HAB. On trees, in creeks and damp woods, *Archer*.

DISTRIB. New Zealand, Australia, South Africa.

Gen. XXV. ORTHOTRICHUM, *Hedwig*.

*Peristomium* duplex vel simplex, rarius 0; *externum* intus sub ore capsulæ adnatum, dentes 16, perumque per paria connati, siccitate erecti, patentes vel reflexi; *internum*, cilia 8 vel 16. *Capsula* immersa vel exserta, erecta, pyriformis, collo plus minus elongato, striata, siccitate costata, exannulata. *Operculum* conico-rostellatum. *Calyptra* magna, campanulata, plicata, basi crenato-lacera, in plurimis recte pilosa.—Florescentia *plerumque monoica*, fl. masc. *gemmeformis*. Caules *pulvinati, subrepentes*.

1. **Orthotrichum crispum** (Hedw. Sp. Musc. p. 162); foliis siccitate cirrhato-crispatis, capsula clavata sicca evacuata elongata sub ore hiantè constricta sulcata fuscescente.—*Bruch et Schimp. Bryol. Eur. t. 223.*

Var. foliis confertis suberectis minus acutis angustinerviis, areolis laxioribus pellucidis, vaginula epilosa, seta longiori, calyptra parva.

HAB. St. Patrick's River. (*Gunn, 1614.*) Trunks of trees: Mount Wellington, rare. (*J. D. H.*)

DISTRIB. Europe.

2. **Orthotrichum luteum** (Mitten); "monoicum, dense pulvinatum, fulvo-luteum, foliis siccitate crispatis madore patentibus e basi obovata concava erectiuscula lineari-lanceolatis nervo flavo sub apice evanido carinatis, cellulis basi utrinque ad margines ovatis circiter quadriseriatis oblongis parallelogrammaticis hyalinis interioribus angustissimis elongatis luteis superioribus rotundis diametro  $\frac{3}{10}$  uncie metientibus in seriebus 10–12 inter marginem et nervum in folii medio dispositis papillosis margine minute crenulato et, ubi basis in partem superiorem angustatur, recurvo, perichætalibus lanceolatis latioribus, vaginula glabra, theca in pedunculo vix duplo longiore ovali-cylindrica plicata, collo elongato crassiusculo, operculo convexo brevi-rostrato, peristomii dentibus 8 bigeminatis ciliis 8 angustis tertio brevioribus, calyptra ramentis exstantibus elongatis pilosa."—*Ulotia lutea, Mitten, in Journ. Linn. Soc. ined.*

HAB. On trees: rivulet behind Cumming's Head, Western Mountains, *Archer*. Mount Wellington, *Mossman*.

DISTRIB. New Zealand.

Corresponding in size with *O. crispum*, but with leaves of a different form at the base, erose margins, and cells in the upper portion larger and further apart. The capsule is also thinner.—*Mitten, l. c.*

3. **Orthotrichum Tasmanicum** (Hook. fil. et Wils. Lond. Journ. Bot. vii. p. 27. t. 1. f. C); foliis patulis subrecurvis siccitate suberectis vix crispis lanceolato-subulatis margine reflexis, seta longiuscula gracili, capsula elliptica oblonga siccitate striata, peristomii interni ciliis 8 latissimis carinatis integris conniventibus, calyptra pallida nitida pilosiuscula, vaginula pilosa.

HAB. On twigs of bushes and decayed wood: Launceston. (*Gunn, 1629.*) Johnny's Creek, New Norfolk, and Hobarton. (*Oidjield, 215, 273.*) (*Mossman.*) Falls Run, *Archer*.

4. **Orthotrichum Lawrencei** (Mitten, in Journ. Linn. Soc. ined.); "monoicum, habitu staturaque *O. leptocarpi*, foliis patentibus e basi late ovali breviter late lanceolatis acutis nervo sub summo apice



evanido carinatis marginibus superne erosulis inferne incurvis cellulis omnibus conformibus minutis rotundis minute papillosis, perichæatialibus caulinis similibus, internis basi cellulis paucis longioribus, theca in pedunculo dimidio brevioris sensim attenuata elliptico-cylindracea siccitate ovali-cylindrica fere ad basin plicata, operculo brevi-rostellato, peristomio dentibus 8 flavidis siccitate reflexis, ciliis 8 latis colore structuraque dentibus simulantibus." (TAB. CLXXII. Fig. 5.)

HAB. Tasmania, *Lawrence*.

From *O. leptocarpum*, B. and S., this species differs in the firmer plicate capsule and acute leaves; from *O. Tasmanicum* and *O. speciosum*, Nees, in the very much wider leaves, not patent or divergent from a suberect base, having elongated narrow cells, but uniform in their direction throughout their length, and composed of cells everywhere minute and round. The cilia, like those of *O. Tasmanicum*, agree in substance, size, and colour with the teeth of the external peristome. The calyptra has not been seen. *Mitten*, l. c.—PLATE CLXXII. Fig. 5; 1, leaf; 2, theca; 3, peristome:—*all magnified*.

### Tribe XI. ZYGODONTÆ.

#### Gen. XXVI. ZYGODON, *Hook*.

*Peristomium duplex*, simplex, vel 0; *externum*, dentes 16, per paria connexi, plani, siccitate reflexi; *internum*, cilia 8 vel 16, dentibus alternantia, linearia, hyalina, horizontalia. *Capsula* erecta, clavato-pyriformis, striata, pedicellata vel immersa, exannulata. *Operculum* oblique rostratum. *Calyptra* cuculliformis, obliqua.

a. *Folia integra*.

\* *Peristomium simplex*.

1. **Zygodon anomalus** (Dz. et Molkb. Ann. Sc. Nat. 1844, p. 316); hermaphroditus, caule humili parce ramuloso flavido-viridi, foliis recurvo-patentibus undulato-flexuosis siccitate laxè crispato-contortis oblongo-lanceolatis carinatis margine subplanis nervo in apiculum breve excurrente, perichæatialibus brevioribus lanceolato-acuminatis erectis, capsula in pedicello luteo-rubello flexuoso erecta subpyriformi-ovali sulcata siccitate ore contracta pallide fusca, operculo conico-rostrato incurvo breviori, peristomio simplici interno.—*Z. Reinwardti*, *Mitten*, in *Journ. Linn. Soc. ined.*

HAB. Gully near the Huon, on decayed wood, with *Leptostomum inclinans*. (*Oldfield*, 238.) On trees: Stackhouse Falls, *Archer*.

DISTRIB. Java.

*Plant*  $\frac{1}{2}$  inch in height. *Seta*  $\frac{1}{2}$  inch. *Capsule* larger than usual, almost elliptical-oblong, pale. *Operculum* pale-yellow. *Calyptra* reddish-brown, large, reaching above halfway down the capsule, substriate, coriaceous. *Peristome* very fugacious.

2. **Zygodon intermedius** (Bruch et Schimp. Br. Eur. iv. p. 9); dioicus, caule gracilente elatiore subramoso, foliis laxis erecto-patentibus lanceolato-lingulatis acutiusculis, peristomio simplici interno 8-ciliato.—*Z. conoideus*,  $\beta$  elongatus, *Hook. et Grev. Brewst. Journ. Sc.* 132. *Z. Menziesii*, *Taylor*.

HAB. On trees? (*Lawrence*, 24). (*Spence and Neil*.) Cheshunt, *Archer*; Mount Wellington, *Mossman*.

DISTRIB. New Zealand.

\*\* *Peristomium duplex*.

3. **Zygodon Brownii** (Schwægr. Suppl. t. 317 b); dioicus, caule ramoso fastigiato, foliis squarrosis oblongis acutis, peristomio duplici.





HAB. Common on rocks, bark of trees, etc., throughout the Island.

DISTRIB. New Zealand.

4. **Zygodon minutus** (C. Mueller et Hampe, Plant. Muell. in Linnæa, 1855, p. 209); "dioicus, dense cæspitosus, humilis, flavescens, caule tenello brevissimo densifolio innovando subramoso, foliis caulinis dense imbricatis madore et siccitate strictis anguste oblongo-lanceolatis acuminatis carinatis margine convexis nervo valido flavido excurrente, e cellulis rotundatis incrassatis lævibus basi paucis laxis parenchymaticis arcolatis, perichætialibus angustioribus, theca in pedicello brevi tenero flavido erecta pyriformi-ovali operculo conico obliquo acuminato instructa octo-sulcata, peristomii dentibus exterioribus arcte conjunctis brevissimis 16-geminatis, ciliis 8 internis in membrana tenerrima reticulata."—Mitten, in lit.

HAB. On trees, Gunn.

DISTRIB. Australia.

Similar to *Z. Menziesii* (*Codonoblepharum*), Schwægr., but easily distinguished by the excurrent nerve of its more sharply pointed leaves and different peristome. Mitten, l. c.

b. *Folia dentata*.

5. **Zygodon cyathicarpus** (Montagne, Ann. Sc. Nat. Cent. v. p. 30, et Fl. Chil. Crypt. 132. t. 3. f. 1); monoicus, foliis patentibus subrecurvis lineari-lanceolatis acutis carinatis remote dentatis siccitate crispato-tortuosis, perichætialibus capsulam superantibus, seta perbrevis, capsula cyathiformi gymnostoma striata, operculo convexo oblique rostellato.—Gymnostomum linearifolium, Taylor, in Lond. Journ. Bot. v. p. 42. Didymodon cyathicarpus, Mitten, in Journ. Linn. Soc. ined.

Var.; foliis siccitate minus crispatis pellucidinerviis, areolis majoribus quadratis.

HAB. On the ground: Dromedary, New Norfolk. (Oldfield, 139.) Cheshunt, Archer.

DISTRIB. South America, New Zealand, South Africa.

Gen. XXVII. CODONOBLEPHARUM, Schwægr.

*Peristomium duplex*; *externum* Zygodontis; *internum*, cilia 16, e membrana basilari brevissima in campanulæ formam elevata. *Calyptra* cuculliformis.

1. **Codonoblepharum Menziesii** (Schwægr. Suppl. t. 137); caule erecto subdiviso fastigiatim ramoso, foliis confertis erectiusculis lingulatis integerrimis solidinerviis, capsula pyriformi infra orem contracta sulcata, operculo conico-rostellato.—Zygodon Drummondii, Taylor, MSS. *Z. Menziesii*, Mitten, in Journ. Linn. Soc. ined.

HAB. On the bark of trees; on the ground, near the sea. (Gunn.) (Oldfield, 290.) On trees, in open ground, and in the forests. Cheshunt, Archer.

DISTRIB. New Zealand, Australia.

Tribe XII. BRYACEÆ.

Gen. XXVIII. LEPTOSTOMUM, R. Brown.

*Peristomium simplex*, membranaceum, demum annulare, subdivisum, e membrana interiore ortum. *Capsula* clavato-pyriformis, suberecta vel cernua, longipedunculata. *Operculum* brevissimum, subconicum. *Calyptra* cucullata.—Florescentia dioica: fl. masc. terminalis, capituliformis. Caules dense cæspitosi, radiculoso-tomentosi. Folia ovato-lanceolata, pilifera, crassinervia, areolis circularibus.

1. **Leptostomum inclinans** (R. Br. in Linn. Trans. x. p. 321. t. 23); foliis erecto-patentibus laxius



imbricatis ovato-oblongis obtusis piliferis siccitate erectis margine reflexis, capsula inclinata obovato-clavata, operculo conico-hemisphærico.—*Schwægr. Suppl. t. 213.* *Gymnostomum inclinans*, *Hook. Musc. Exot. t. 168.* *L. flexipile*, *C. Mueller*; *conf. Mitten*, in *Journ. Linn. Soc. ined.*

HAB. On moist rocks: top of Grass-tree Hill, etc., near Hobarton. (*Gunn, 22, 1586.*) (*J. D. II.*) (*Lawrence, 259.*) (*Oldfield.*) Cheshunt, *Archer.*

DISTRIB. New Zealand.

2. ***Leptostomum macrocarpum*** (R. Br. l. c. p. 322); foliis elliptico-oblongis subobovatis concavis margine revolutis pilo ramoso terminatis, capsula erecta ovato-oblonga microstoma, operculo obtuse conico.—*Bryum macrocarpon*, *Hedw. Musc. Frond. iii. t. 10.*

HAB. Mount Wellington, *R. Neill.*

DISTRIB. Tahiti, New Zealand, Australia.

#### Gen. XXIX. LEPTOTHECA, *Schwægr.*

*Peristomium duplex*; *externum*, dentes 16, lanceolato-lineares, erecti; *internum*, membrana tenera in cilia totidem linearia cum ciliis interpositorum rudimentis fissa. *Capsula* cylindrica, erecta, æqualis. *Calyptra* dimidiata.

1. ***Leptotheca Gaudichaudi*** (*Schwægr. Suppl. t. 137*); caule erecto ramosiusculo, foliis laxis patulo-erectis oblongis e nervo excurrente cuspidatis grosse dentatis, capsula erecta angustata cylindrica.—*Aulacomnion Gaudichaudii*, *Mitten*, in *Kew Miscel. 1857, p. 262*; *idem* in *Journ. Linn. Soc. ined.*

HAB. On moist rocks: Mount Wellington. Johnny's Creek, Dry Hill, Back River. (*Oldfield, 226, 136.*) (*J. D. II., 1335.*)

DISTRIB. Australia.

*Inflorescence* certainly dioicous (contr. *Schwægr.*). *Perichætil leaves* longer and narrower than the rest. *Annulus* large, adhering to the mouth of the capsule. *Outer peristome* pale-yellow, erect.

#### Gen. XXX. MNIOPSIS, *Mitten.*

*Acrocarpica.* *Folia* cellulis hexagonis areolata. *Peristomium* externum dentibus 16, *internum* processibus alternantibus in membrana exsertis. *Calyptra* mitræformis, parva.

1. ***Mniopsis Plumula*** (*Mitten*, in *Journ. Linn. Soc. ined.*); “*dioica, gregaria, caulibus simplicibus erectis inferne foliis minutis remotis superne majoribus in caule fertili horizontaliter insertis patentibus ovatis, comalibus perichætilibusve ligulatis obtusis in caule sterili distichaceis verticalibus oblongo-ovatis acutis obtusisve patentibus decurrentibus omnibus integerrimis nervo sub apice evanido, cellulis hexagonis limitibus crassiusculis, theca in pedunculo bilineari gracili ovali-cylindrica æquali, operculo subulato recto, peristomio externo dentibus longissimis angustis rubris siccitate incurvis cirrhatisque interno processibus ciliiformibus brevibus in membrana brevi exserta, flore masculo fœminei simili in caulium apicibus parvo capituliforme, antheridiis minutis brevibus, paraphysibus nullis.*” (*Tab. CLXXIII. Fig. 7.*)

HAB. Below the quarry, Ovens Creek, *Archer*; sent also in a barren state by Mr. Oldfield.

*Stems* from one-fourth to half an inch high, dull-green, considerably resembling some small species of *Fissidens*; its affinity is however to *Schistostega*, with which it agrees in the vertical insertion of the leaves of its barren stems, but recedes in the presence of a rather stout nerve and the regular hexagonal cells. In the structure of its peristome it approaches to *Aulacomnion*. The calyptra is smaller in proportion than that of *Tetraphis* or *Tetrodontium*. *Mitten, l. c.*—*PLATE CLXXIII. Fig. 7*; 1–3, plants; 4, leaf; 5, capsule; 6, peristome:—*all magnified.*



Gen. XXXI. ORTHODONTIUM, *Schwægr.*

*Peristomium duplex*, infra capsulæ orificium oriens; *externum*, dentes 16, lanceolato-subulati, siccitate infra orificium sæpe inflexi; *internum*, cilia 16, dentibus alternantibus, e basi brevi subcarinata dilatata filiformia. *Capsula* clavato-pyriformis, in pedicello tenui suberecta vel cernua, exannulata, symmetrica, leptoderma, laxe areolata. *Operculum* breve, conico-rostellatum. *Calyptra* parvula, cuculliformis, fugax. —Musci *graciles, cæspitosi, habitu Bryis angustifoliis affines*. Florescentia *monoica*; fl. masc. *gemmæformes, axillares, sæpius aggregati*. Folia *longiuscula, lineari lanceolata, tenuia, laxe areolata*; areolis *subparallelogrammaticis, evanidlinerviis*.

1. **Orthodontium australe** (Hook. fil. et Wils. Fl. Antarct. p. 106. t. 153. f. 5); caule ramoso fastigiato humili, foliis erecto-patentibus subrecurvis anguste linearibus subflexuosis nervo subcontinuo, capsula suberecta oblonga brevicolla, operculo rostellato.

HAB. On dead timber: Kangaroo Bottom. On dry trunks of trees: Mount Wellington, elev. 2000 feet. Back River, Brown's River. (*J. D. II.*) (*Oldfield*, 134, 227, 225, 330.) On dead trees: West-end rivulet, *Archer*.

DISTRIB. Falkland Islands, Hermite Island.

Gen. XXXII. LEPTOBRYUM, *Br. et Schimp.*

*Peristomium Bryi*. *Capsula* in pedicello elongato tenaci flexuoso inclinata vel pendula, e collo longo angusto subito inflato-ovalis, leptoderma, vernicoso-nitida, luteo-rufa, sicca ore contracta, annulata. *Operculum* convexum, apiculatum. *Calyptra* perangusta. *Flores* hermaphroditæ.—Plantæ *simplices, ex infima basi innovantes*. Folia *media lanceolata, costata, summa in comam polyphyllam congesta, longissima, e basi lanceolata longe et flexuose subulata, costa lata maximam partem laminæ occupante excedente*.

1. **Leptobryum pyriforme** (Br. et Schimp. Bryol. Eur. t. 355).—*Bryum pyriforme, Hedw. Hist. Musc. i. t. 3. f. 12.* *Webera pyriformis, Hedw. Musc. Frond. t. 3.*

HAB. Back River Gully, on rotten wood, with *Ceratodon purpureus*. (*Oldfield*, 312.)

DISTRIB. Europe, Asia, America.

Gen. XXXIII. BRACHYMENIUM, *Hooker.*

*Peristomium duplex*; *externum*, dentes 16, lanceolato-lineares; *internum*, membrana plicata brevis, apice dilacerato in cilia sexdecim irregulariter fissa. *Calyptra* cuculliformis. *Capsula* clavato-pyriformis, æqualis, annulata, suberecta.

1. **Brachymenium lanceolatum** (Hook. fil. et Wils.); monoicum, caule breviusculo, innovationibus crassiusculis, foliis erecto-patentibus flaccidis siccitate subflexuosis lineari-lanceolatis acuminatis carinatis integerrimis laxe pellucide areolatis nervo continuo, seta longa, capsula suberecta ovali-pyriformi brevicolla, operculo conico brevi. (TAB. CLXXIII. Fig. 8.)

HAB.? (Specimen scanty.) (*Gunn.*)

Very like *Acidodontium Kunthii*, Hsch., but differing in the inflorescence.—*Leaves* twice as long, with larger areolæ, yellowish. *Capsule* shorter. *Teeth of the peristome* pale, gradually tapering, trabeculate externally. *Inner peristome* nearly as long as the outer. *Annulus* yellow, adhering to the mouth of the capsule. *Male and female flower* contiguous. *Seta* red.—PLATE CLXXIII. Fig. 8; 1 and 2, leaves; 3, capsule; 4, peristome:—*all magnified.*



Gen. XXXIV. MELICHHOFERIA, *Hornsch.*

*Fructificatio* in ramulis brevibus secundariis nonnunquam ad plantæ basin nascentibus terminalis. *Peristomium* plerumque simplex, rarius duplex vel nullum; *externum* sæpius nullum; *internum*, cilia 16, articulata, pallida, subplana, in membrana basilari brevi posita, vel libera. *Capsula* pyriformis, cernua, annulata. *Calyptro* cucullata.—Florescentia *synoica, monoica, vel dioica.*

1. **Mielichhoferia Eckloni** (Hsch. in Linn. 1841, p. 118); monoica, caule fertili subbasilari brevissimo, innovationibus simplicibus erectis elatis basi nudis superne dense foliosis, foliis suberectis lanceolatis ovato-lanceolatis acuminatis planiusculis apice serrulatis evanidinerviis, perichætalibus minoribus erectis, seta elongata, capsula cernua obovato-pyriformi hinc gibba, peristomio duplici.—Schizhymenium bryoides, *Harvey, in Hook. Ic. Plant. t. 202; Schwagr. Suppl. t. 317.*

HAB. On the ground: Gullies Road, Brown's River. (*Oldfield.*) (*Gunn, 25 b.*) Cheshunt, *Archer.*  
DISTRIB. South Africa.

Some of the Cape of Good Hope specimens, though not in good condition, distinctly show a double peristome.—*Outer teeth* sixteen, imperfect. *Inner peristome* sixteen filiform cilia connected occasionally at the top by trabeculæ, and united at the base into a narrow membrane. *Annulus* large.

Gen. XXXV. BRYUM, *Dillen.*

*Peristomium* duplex; *externum*, dentes 16, æquidistantes, simplices, lanceolati, dorso linea longitudinali exarati, intus transversim lamellati, valde hygroscopici, sicci incurvi; *internum*, membrana in processus 16 carinatos cum dentibus alternantes fissa, ciliis filiformibus interjectis, dentibus oppositis vel nullis. *Capsula* pyriformis vel clavata, pendula vel inclinata, collo brevissimo vel elongato, plerumque annulata. *Operculum* convexum, apiculatum, breve.—Florescentia *dioica, monoica, vel synoica*; antheridia *paraphysibus filiformibus immixta.* Folia *ovata, lanceolata, plerumque integra, costata, cellulis rhomboideis.* Caules *perennes, cæspitiosi, innovationibus simplicibus cauli similibus proliferi.*

§ 1. WEBERA.—*Plantæ graciles, simplices, e basi innovantes. Folia lanceolata, superiora multo longiora.*

1. **Bryum nutans** (Schreb. Fl. Lips. p. 81); monoicum, caule breviusculo, foliis superioribus elongato-lanceolatis apice serratis inferioribus ovato-lanceolatis integerrimis, capsula nutante vel pendula oblongo-pyriformi, operculo majusculo convexo papillato, antheridiis in foliorum perichætalium axillis per paria insertis.—*Bryol. Europ. t. 347.*

HAB. Western Mountains. (*Gunn, 1588.*) Mount Wellington. (*Oldfield, 306, 126.*) Roadside, Splitters Hill, *Archer.*

DISTRIB. Lord Auckland's Group, Hermite Island, North Asia, America, Europe.

§ 2. BRYUM.—*Plantæ sub apice prolifero innovantes.*

a. *Flores synoicæ (♀ et ♂ immixtis).*

2. **Bryum intermedium** (Web. et Mohr, Bot. Tasch. 283); foliis ovato-oblongo- et elongato-lanceolatis nervo excedente longius cuspidatis apice subdenticulatis margine recurvis, capsula clavato-pyriformi incurviscula sicca sub ore haud coarctata, operculo acuto persistente.—*Bruch et Schimp. Bryol. Europ. t. 356.*

HAB. Turf-banks: Glen Leith, *J. D. II.*

DISTRIB. New Zealand?, Europe.

VOL. II.

3 c





3. **Bryum Tasmanicum** (Hampe, De Plant. Muell. Linnæa, 1852); synicum, caule humili cæspitoso, foliis elliptico-lanceolatis nervo excurrente in acuminem subpiliformem producto marginibus integerrimis recurvis, theca in pedunculo elongato nutante ovali collo æquilonga.—*Mitten, in Journ. Linn. Soc. ined.*

HAB. Cheshunt, *Archer*. South Esk River, *Mossman*.

Habitus *B. pallescentis* sed hermaphroditum; a *B. bimo* differt, foliis longioribus, magis acuminatis, nervo longe excurrente.—*Hampe*.

Mr. Archer's specimens are too old to show the true structure of the internal peristome, but it appears to be that of *Pohlia*.—*Mitten, in lit.*

4. **Bryum bimum** (Schreb.); hermaphroditum, foliis patentibus ovato-lanceolatis carinatis margine reflexis nervo excurrente mucronatis siccitate subtortilibus, capsula pendula obovato-pyriformi, operculo majusculo convexo mamillato.—*Fl. N. Zeal. p. 85; Mitten, in lit.*

HAB. Cheshunt, *Archer*.

DISTRIB. New Zealand, Europe, North America.

5. **Bryum torquescens** (Br. et Schimp. Bryol. Europ. t. 358); foliis caulinis et ramulinis remotis elongato-lanceolatis complicato-carinatis margine reflexis subflexuosis, comalibus confertis ex ovato oblongo-lanceolatis concavis omnibus integris (limbo perangusto nervo in cuspidem lævem excedente) siccitate arcte cointortis, capsula elongato-obconica subincurva rufo-brunnea, operculo lato mamillato purpureo nitido.

HAB. Western Mountains. (*Gunn, 1588, 1701.*) Cheshunt, *Archer*. Mount Wellington, *Mossman*. (Specimens few and imperfect.)

DISTRIB. New Zealand, Australia, Europe, South Africa.

b. *Florescentia dioica.*

6. **Bryum rubiginosum** (Hook. fil. et Wils.); caule elongato rigidulo, foliis laxis erecto-patentibus apice recurvis siccitate crispis subtortis ellipticis acutiusculis decurrentibus pellucide arcolatis evanidinerviis margine inferne reflexis. (TAB. CLXXIII. Fig. 9.)

HAB. In wet places? (*Gunn, 1667.*) (Barren specimens only.)

Stem 1-2 inches long or more, bright-red. Leaves distant, yellowish-green, membranous.—Resembling *B. Duvalii* (Bryol. Europ.), but differing in the form of the leaf.—PLATE CLXXIII. Fig. 9; 1, portion of stem and leaf; 2, leaf:—*both magnified.*

7. **Bryum blandum** (Hook. fil. et Wils. Fl. Antarct. p. 134. t. 60. f. 1); foliis erecto-patentibus imbricatis ovali-oblongis obtusis concavis integerrimis laxè reticulatis tenuinerviis, capsula clavato-pyriformi cernua.

Var. *β. luridum.*

HAB. (Scanty and imperfect specimen.) (*Gunn.*)

DISTRIB. New Zealand, Antarctic Islands.

8. **Bryum lævigatum** (Hook. fil. et Wils. Fl. Antarct. p. 109. t. 154. f. 3); caule longiusculo inferne radicularis atro-purpureis tomentoso, foliis erecto-patentibus imbricatis ovatis obtusiusculis concavis integerrimis subcoriaceis subsolidinerviis siccitate erectis subappressis, capsula ovato-oblonga pendula, operculo conico-obtusum.

HAB. On wet rocks? (*Lawrence.*) (*Gunn, 1588.*) Cheshunt, *Archer*.

DISTRIB. Antarctic Islands, Fucgia.

9. **Bryum argenteum** (Linn. Sp. Pl. 1586); foliis imbricatis late ovalibus apiculatis concavis laxè arcolatis integerrimis seminerviis albido-sericeis, capsula pendula ex ovali oblonga.—*Bryol. Europ. t. 384.*



Var. *niveum*; innovationibus obtusis, foliis arcte imbricatis niveis brevissime apiculatis submuticis, perichæcialibus longioribus acuminatis.

HAB. Surrey Hills. (Gunn, 1615.)

DISTRIB. All parts of the world.

10. **Bryum clavatum** (Hook. fil. et Wils. Fl. N. Zeal. p. 84. t. 85. f. 3); foliis erecto-patentibus incurvis elliptico-lanceolatis subcoriaceis concavis nervo crasso excurrente cuspidatis, seta breviuscula, capsula clavato-oblonga arcuata majuscula subpendula, operculo subconico.

HAB. On the ground. (Gunn.)

DISTRIB. New Zealand.

11. **Bryum capillare** (Hedw. Sp. Musc. p. 182); foliis patentibus siccitate contortis ovato-oblongis vel obovatis concavis in apiculum longiusculum subpiliiformem productis nervo sub apice evanido vel subexcurrente margine reflexis, capsula cernua vel pendula clavato-pyriformi subarcuata sicca sub ore vix angustata, operculo mamillato.—*Br. et Schimp. Bryol. Eur. t. 368.*

HAB. On rocks. (Oldfield.) (Specimens few and imperfect.)

DISTRIB. All parts of the world.

12. **Bryum obconicum** (Hornsch. in Bryol. Eur. t. 367); foliis oblongo-ovatis acuminatis nervo excurrente cuspidatis submarginatis apice serrulatis siccitate vix tortilibus margine reflexis subcarinatis, capsula subpendula clavata longicolla, operculo convexo mamillato.

HAB. Circular Head. (Gunn, 1701.) (Specimen small and imperfect.)

DISTRIB. New Zealand, Europe.

13. **Bryum pachythea** (C. Mueller, Syn. Musc. i. 307); dioicum, caule humili, foliis lato-ovali-acuminatis concavis nervo crasso excurrente cuspidatis margine subplanis, capsula in pedicello breviusculo subito pendula ventricoso-ovali basi rotundata torosa rugulosa atro-purpurea, operculo breviusculo subconico.—*R. balanoides, Tuyl. MSS. (Gunn, 23, 1621 b.) (Oldfield, 56.)*

Var.  $\beta$ ; foliis angustioribus, nervo crassiore. (Gunn, 25.)

Var.  $\gamma$ . *inflatum*; foliis subrotundis valde concavis apice incurvis. (Oldfield, 56.)

HAB. Dry earth: Macquarrie Plains, *J. D. II.* Hospital Bay Hill, South Huon. Grass-tree Hill, with var.  $\gamma$ . Cultivated soil: Mount Richmond, *Gunn, Oldfield, etc.*

DISTRIB. Australia, New Zealand.

Very like *B. atropurpureum*, Wahl., in general aspect and size.—*Leaves* not recurved in the margin. *Nerve* stronger, more excurrent, red. *Capsule* more like that of *B. coronatum*, Schwægr.

14. **Bryum cæspiticium** (Linn. Sp. Pl. 1586); foliis caulinis remotis parvulis lanceolatis, comalibus majoribus in gemmam subimbricatam confertis rarius patentibus siccitate erectis subappressis ovato- et oblongo-lanceolatis acuminatis excurrentinerviis margine reflexis, capsula inclinata et pendula elongato-pyriformi fusca.—*Bryol. Eur. t. 384.*

Var. *crinitum*; foliis subpiliiferis, seta longiori, capsula oblonga.

HAB. Dry ground: Hobarton. (Gunn, 24.) (*J. D. II.*) Port Sorrell, *Archer.* (Specimens few and immature.)

DISTRIB. Europe, Africa, America, Antarctic Islands, Fuegia.

15. **Bryum crassum** (Hook. fil. et Wils. Fl. N. Zeal. p. 86. t. 86. f. 1); caule longiusculo rigidulo ramoso tomentoso, ramis apice tumidis inferne foliis minutis vestitis, foliis erectis arcte imbricatis siccitate



appressis substriatis concavis ovato-oblongis coriaceis acutis solidinerviis margine reflexis apice subintegris, capsula pendula oblongo-pyriformi, operculo conico-apiculato.

HAB. Woods on Mount Wellington. Moist rocks: New Country, and Ridsen, *J. D. II.* Cheshunt, *Archer*.

DISTRIB. New Zealand.

16. **Bryum Billardieri** (Schwægr. Suppl. t. 76); foliis superioribus in rosulam congestis patentibus apice recurvis siccitate crispato-undulatis erectis obovato-oblongis acutiusculis inmarginatis apice serratis nervo subexcurrente apiculatis margine inferne reflexis, seta crassiuscula apice in collo arcuato, capsula subito desinente, capsula nutante clavato-pyriformi arcuata, operculo subconico.

HAB. Moist places, in woods, *J. D. II.* Yorktown. (*Gunn*, 1585.) Cheshunt, *Archer*. Wellington Falls, *Mossman*.

DISTRIB. New Belgium, New Zealand, Australia, Falkland Islands, South Africa, South America.

17. **Bryum rufescens** (Hook. fil. et Wils.); *Bryo Billardieri* valde affine, caule graciliori, foliis spathulatis mollioribus basi pellucide areolatis rubellis margine vix recurvis, nervo rubello, capsula clavata arcuata subpendula ore purpurascens. (*Gunn*, 1691.) (TAB. CLXXIV. Fig. 1.)

Var.  $\beta$ . *mamillatum*; foliis patentibus laxioribus, nervo longius excurrente, operculo hemisphærico mamillato, capsula subæquali. (*Ljall*, 101.) (*Gunn*, 1585 c.)

Var.  $\gamma$ . *brevifolium*; foliis brevioribus concavis siccitate minus crispatis, capsula breviori. (*Gunn*, 1585 b.) (*Oldfield*, 334.)

HAB. Hobarton, and near Ridsen, *J. D. II.* Var.  $\gamma$ . By the seaside: Port Esperance. Penquite, *Gunn*.

Closely allied to the preceding species.—PLATE CLXXIV. Fig. 1; 1, fruiting plant; 2, leaf; 3, capsule:—*all magnified.*

18. **Bryum truncorum** (Bridel, Mant. Musc. 119); caule elongato, foliis terminalibus in rosulam congestis patentibus apice recurvis siccitate tortuosis erectis obovato-acuminatis submarginatis apice argute serratis margine inferne reflexis, nervo subexcurrente, seta elongata apice in collo arcuato capsula desinente, capsula elongato-cylindrica arcuato-nutante, operculo conico-apiculato brevi.—*B. Polla-truncorum*, *Bridel*, *Br. Univ.* i. 699. *B. leptothecium*, *Taylor*, *MSS.*

HAB. Damp ground: Penquite. Rivulet by Lightwood Bottom, South Huon. (*Gunn*, 26 a, 1585.) (*Oldfield*, 55, 119.) Cheshunt, *Archer*. On sandy ground, *Mossman*.

DISTRIB. Isle de Bourbon.

#### Gen. XXXVI. AULACOMNION, Schwægr.

*Peristomium* Mnii. Capsula ovalis vel oblonga, subcylindracea, cernua, brevicolla, striata, siccitate sulcata. Operculum convexum, brevirostre.—Florescentia dioica, fl. masc. discoideus.

1. **Aulacomnion palustre** (Schwægr. Suppl. t. 216); caule radice ferrugineis tomentoso, foliis flexuoso-patentibus siccitate torquatis lineali-lanceolatis margine reflexis apice crosso-denticulatis, capsula curvula.

Var.; caule gracili, foliis minoribus acutis subintegris densius subopace areolatis siccitate valde crispatis.—*An species distincta?*

HAB. Formosa. (Barren specimens only, with pseudopodia.) (*Gunn*.)

DISTRIB. Europe, North America, Siberia.



## Tribe XIII. BARTRAMIACEÆ.

## Gen. XXXVII. BARTRAMIA, Hedw.

*Peristomium* duplex, simplex, vel nullum; *externum*, dentes 16, lanceolati, læves, trabeculati, linea media exarati, sicci incurvi, rufi; *internum*, membrana sedecies plicata, in dentes 16 lanceolatos carinatos latos dein in laciniis duas divergentes articulatas fissas producta, ciliis interjectis vel nullis. *Capsula* plerumque spherica, microstoma, exannulata, siccitate sulcata, inclinata, erecta, vel cernua. *Operculum* planiconicum, breve. *Calyptra* parva, dimidiata.—Folia *angusta, rigida, serrata, costata, quadrate areolata, papillosa.*

§ 1. BARTRAMIDULA.—*Capsula gymnostoma, estriata, in pedicello arcuato horizontalis vel pendula.*  
*Florescentia monoica. Plantæ parvæ, tenellæ, sub apice fertili verticillato-ramulosæ.*

1. **Bartramia pusilla** (*Glyphocarpa*, Hook. fil. et Wils. Lond. Journ. Bot. 1844, p. 545); caule brevissimo gracillimo subramoso, foliis erecto-patentibus minutis ovatis acutiusculis laxè reticulatis subintegris margine planis evanidinerviis, perichætalibus brevibus erectis, seta apice arcuata brevi, capsula pendula globosa, operculo subconico planiusculo. (TAB. CLXXIV. Fig. 2.)

HAB. On rocks: near Hobarton, *Lyall.*

Scarcely 2 lines in height, the very short stem growing from a creeping stolon. *Branches* few, subfasciculate, curved, slender. *Leaves* very small, pellucid, with a very faint nerve. *Capsule* reddish-brown, lined at the mouth with a faint annular membrane adherent to the apex of the columella, which closes the orifice. *Spores* yellow, rather large. *Seta* pale. *Inflorescence* synoicous and monoicous.—A smaller species than *Bartramidula Wilsoni*, Bryol. Europ., with *leaves* of both stem and perichæcium one-third as small, without serratures. *Capsule* globose.—PLATE CLXXIV. Fig. 2; 1 and 2, plants in fruit; 3, portion of stem and leaves:—*all magnified.*

§ 2. PHILONOTIS.—*Capsula peristomio instructa, striata, pachyderma. Caulis sub apice florifero fasciculato-ramosus. Florescentia monoica et dioica; fl. masc. discoidens.*

2. **Bartramia remotifolia** (Hook. fil. et Wils.); dioica, caule humili gracili fasciculatim ramoso, ramis gracilibus brevibus subrecurvis, foliis glaucescentibus distantibus patentibus siccitate laxè crispatis lanceolato-acuminatis serrulatis margine planis nervo pellucido angusto excurrente, perichætalibus longioribus erectis, seta elongata crassiuscula, capsula suberecta.—*Philonotis appressa*, *Mitten, in Journ. Linn. Soc. ined.* (TAB. CLXXIV. Fig. 3.)

HAB. Gullies Road, Brown's River, *Oldfield.* (Specimen very scanty and immature.) On rocks: Elliott Rivulet. Rivulet near Cumming's Head, Western Mountains, *Archer.*

*Stem*  $\frac{1}{4}$  inch, very slender, not thicker than the fruit-stalk. *Foliage* pale, glaucous, with small, dense, opaque areolæ. *Seta* nearly 1 inch long, red.—Allied to *B. glauca*, Arnott; habit more slender; leaves crisped when dry.—PLATE CLXXIV. Fig. 3; 1, portion of stem and leaves; 2, leaf:—*both magnified.*

This appears to me to be the fertile state of *B. appressa*, Fl. N. Zcal. ii. 89.—*Mitten, in lit.*

3. **Bartramia tenuis** (Taylor, in Phytol. 1844, p. 1095); dioica, caule gracili apice fasciculatim ramoso, ramis gracilibus flexuosis, foliis laxis patentibus secundis anguste lanceolatis serrulatis margine planis nervo longe excurrente dorso spinuloso acuminatis, perichætalibus setacco-acuminatis erectis, seta longiuscula gracili, capsula inclinata, peristomii interni processibus elongatis apice connexis, flore masculo capituliformi, foliis perigonialibus apice patentibus incurvis longe acuminatis serrulatis. (TAB. CLXXIV. Fig. 4.)

HAB. Deep Gully, Mount Wellington, near springs, *Oldfield.*





DISTRIB. Norfolk Island, New Zealand (*vide Taylor*).

Closely allied to *B. mollis* (Dz. and Molk. Ann. Sc. Nat. 1844, ii. 300).—Leaves less crowded, more patent, of laxer texture; areolæ larger, rectangular, flexuose at the apex; margin not reflexed; serratures larger and more distant, less evidently in a double series.—The specimens are too few to admit of more than one capsule being examined, but if the character of the inner peristome prove constant, it will be a good mark of the species.—PLATE CLXXIV. Fig. 4; 1, portion of stem and leaves; 2, leaf; 3, capsule:—*all magnified*.

This I take to be the *B. uncinata*, Schwægr., of Fl. N. Zeal. ii. 89.—*Mitten, in lit.*

4. **Bartramia affinis** (Hook. Musc. Exot. t. 176); dioica, caule tomentoso parce fasciculato-ramoso, foliis erecto-patentibus strictis ovato-lanceolatis acuminatis subintegris basi subplicatis margine anguste recurvis nervo crassiusculo longe excurrente, perichæcialibus minoribus erectis, seta breviuscula, capsula subpendula oblonga subpyriformi sulcata, operculo conico.

HAB. Moist ground, frequent. Goat Hill, New Norfolk. Back River Gully. Kangaroo Bottom. Mount Wellington. (*J. D. H.*) (*Gunn*, 1627, 1683.) (*Oldfield*, 149, 153, 280.) On dead timber, in exposed places: Mount Wellington, *Mossman*.

DISTRIB. New Zealand, Australia.

‡ 3. BREUTELIA.—*Folia vaginantia, plicata, squarrosa. Caulis fasciculato-ramosus. Inflorescentia dioica; fl. masc. discoideus.*

5. **Bartramia pendula** (Hook. Musc. Exot. t. 21); dioica, caule fasciculatim ramoso tomentoso, foliis patentibus ovato-lanceolatis longe acuminatis serrulatis striatis excurrentinerviis, seta elongata, capsula pendula oblonga sulcata.—*Schwægr. Suppl. t. 239*.

HAB. Mount Wellington, elev. 2000 feet. Mount Nelson. Brown's River. (*J. D. H.*) (*Oldfield*, 326.)

DISTRIB. New Zealand, Hermite Island, Campbell's Island.

This I take to be the true *B. Sieberi*.—*Mitten, in lit.*

6. **Bartramia crassa** (Hook. fil. et Wils.); dioica, caule tomentoso robusto longiusculo parce vageque ramoso, foliis confertis patentibus plerumque secundis e basi ovata amplexicaule lanceolato-acuminatis plicatis serrulatis nervo angusto subexcurrente, seta longa, capsula inclinata oblonga.—*B. gigantea*, *Schwægr. Suppl. t. 161*. (*Conf. B. Sieberi, Hornsch.; C. Mueller, Syn. Musc. i. 491.*) (TAB. CLXXIV. Fig. 5.)

HAB. Near springs: top of Western Mountains. Mount Wellington. Creek above the Wellington Falls. (*Gunn.*) (*Oldfield*, 101, 104, 106, 111.)

*Stem* 1 inch, rigid. *Leaves* yellowish, glossy, not crisped when dry. *Seta* 1½ inch. *Capsule* large.—Allied to *B. pendula*; leaves more sheathing at the base, less acuminate; serratures more evident; areolæ narrower. The true *B. gigantea* (*Schwægr. Suppl. t. 63*) is a larger Moss, with more widely spreading leaves.—PLATE CLXXIV. Fig. 5; 1 and 2, leaves; 3, capsule:—*all magnified*.

7. **Bartramia Sieberi** (Hornsch. in *Muscis Sieberianis*, n. 13!); "dioica, caule procumbente sub-erectove ramulis brevibus fasciculatis ramoso innovante iterumque ramoso inferne dense radiculoso, foliis haud nitidis e basi brevi erectiuscula ad insertionem contracta patentibus lanceolatis estriatis nervo angusto in acuminem setaceo-pungentem excurrente marginibus serrulatis inferne recurvis cellulis omnibus elongatis angustis papillosis, perichæcialibus conformibus, theca in pedunculo rubro unciali apice flexura angusto pendula ovalis plicata, operculo depresso conico, peristomio parvo, normale?, flore masculino foliis quadruplo lterioribus late ovatis patulis nervo superne evanido."—*Mitten, in Journ. Linn. Soc. ined.* (TAB. CLXXIV. Fig. 6.)



HAB. Mount Wellington, *J. D. H.*, *Oldfield*.

DISTRIB. New Zealand, *Sieber*.

Stems in all the Tasmanian specimens scarcely exceeding an inch in height; colour of the foliage yellowish-green, without gloss; leaves narrow; cells in the upper portion elongated, everywhere distinctly papillose; alary cells few, indistinct. In all the allied species the cells of the upper portion of the leaf are shortened. *Mitten, l. c.*—PLATE CLXXIV. Fig. 6; 1, leaf; 2, capsule:—*both magnified*.

8. *Bartramia divaricata* (Mitten, in Journ. Linn. Soc. ined.); “dioica, caule elongato inferne tomentoso subsimplici, foliis e basi brevi caulem amplectente, cellulis hyalinis pluribus ad angulos marginum congestis, divaricatis lanceolatis plicatis papillois margine serrulatis nervo tenui excurrente mucronatis siccitate subflaccidis, perichætialibus ovatis integerrimis nervo angustissimo, theca in pedunculo elongato horizontali oblongo-ovali, collo pyriformi attenuato, operculo conico, peristomio normali.”

HAB. Cheshunt, *Archer*.

DISTRIB. New Zealand.

Resembles the larger states of *B. pendula*, but differs in its divaricated leaves, which have, when dry, a subflaccid appearance, a differently formed base, and the stems almost simple. *Mitten, l. c.*

9. *Bartramia comosa* (Mitten, in Journ. Linn. Soc. ined.); “dioica, caule erecto inferne fusco tomentoso superne ramis pluribus comosis ramoso, foliis e basi breviter erecta superne dilatata utrinque ad margines seriebus pluribus cellularum hyalinarum majorum limbata inde patentibus divergentibusque sensim angustatis lanceolatis plicatis minute papillois margine serrulatis nervo excurrente setiformi siccitate haud mutatis, perichætialibus minoribus ovato-lanceolatis, theca in pedunculo elongato sesquiunciali ovali inclinata plicata operculo conico peristomio normale.” (TAB. CLXXIV. Fig. 7.)

HAB. Rocks: East Creek and Cumming’s Head, Western Mountains, *Archer*. Wellington Falls, Mount Wellington, *Mossman*.

DISTRIB. New Zealand.

This fine species differs from all the states of *B. pendula* in the short, erect base of its leaves, which is widest at the point from which the superior portion is deflexed, and composed of cells which are everywhere far shorter. *Mitten, l. c.*—PLATE CLXXIV. Fig. 7; 1, leaf; 2, apex of ditto; 3, capsule:—*all magnified*.

§ 4. BARTRAMIA.—*Caulis dichotome fastigiato-ramosus. Fl. masc. gemmaformis.*

10. *Bartramia Halleriana* (Hedw. Musc. Frond. t. 40); monoica, caule elongato vage fastigiato-ramoso, foliis patentibus vel secundis siccitate laxa flexuosis e basi lata subvaginante lineari-subulatis serrulatis, capsula subglobosa brevipedicellata immersa, operculo conico.—*Bryol. Europ. t. 320. B. Mossmaniana, C. Mueller, Bot. Zeit. 1851, p. 552; conf. Mitten, in Journ. Linn. Soc. ined.*

HAB. Near springs, and on moist rocks; abundant. Mount Wellington. St. Patrick’s River. (*J. D. H.*) (*Gunn, 1589, 1697.*) (*Oldfield, 32, 267.*) On rocks: Elliott Rivulet. Rivulet behind Cumming’s Head, Western Mountains, and in a rivulet, north side of Western Mountains, at an altitude of about 2000 feet, *Archer*. Mount Wellington, *Mossman*.

DISTRIB. Europe, North and South America, New Zealand.

11. *Bartramia papillata* (Hook. fil. et Wils. Fl. N. Zeal. p. 89. t. 86. f. 4); dioica, caule subramoso, foliis confertis erecto-patentibus patulivae strictis e basi pallida obovata vaginante subulatis minutissime serrulatis dorso papillatis solidinerviis, seta longiuscula, capsula suberecta.—*B. acerosa, Hampe, Planta Muelleriana in Linnea; fid. Mitten.*

HAB. On rocks. (*Gunn, 29.*) Dry Hill, Back River. (*Oldfield, 228.*) East side of Ovens Creek, *Archer*.



DISTRIB. New Zealand.

Resembles *B. illyphylla*, Brid., but differs in the inflorescence.

12. **Bartramia fragilis** (Mitten, in Journ. Linn. Soc. ined.); "dioica?, dense cæspitosa, caule erecto subsimplici, foliis densis fragillimis erecto-patentibus e basi appressa laxè vaginante oblonga superne paululum dilatata ibique tenuiter hyalino-marginata laxè areolata subito subulata longè lanceolatis cellulis obscuris densis nervo percurrente margine dorsoque serrulatis, perichætialibus lanceolatis inconspicuis, theca in pedunculo breviusculo rubro globosa plicata erecta, operculo brevi conico, peristomio externo normale interno processibus brevissimis rudimentariis." (TAB. CLXXIV. Fig. 8.)

HAB. On rocks: rivulet behind Cumming's Head, Western Mountains, *Archer*.

DISTRIB. New Zealand.

More densely and compactly cæspitose than *B. papillata*, the subulate portion of the leaf wider, less papillose, and not so obscure. The inflorescence appears to be dioicous. The leaves are so densely congested that the vaginant base is not erect, but only appressed to those above it, and the slightest touch suffices to detach them from the stem. *Mitten, l. c.*—PLATE CLXXIV. Fig. 8; 1, leaf; 2, capsule; 3, teeth:—*all magnified*.

#### Gen. XXXVIII. CONOSTOMUM, *Swartz*.

*Peristomium simplex*; *dentes* 16, lanceolato-subulati, in conum persistentem conniventes, apice connexi. *Capsula* globosa, microstoma, sulcata, exannulata. *Operculum* conico-rostellatum. *Calyptra* brevissima, subulata, latere fissa.

1. **Conostomum australe** (*Swartz*, in *Schrad. New Bot. Journ.*); monoicum, caule erecto ramoso, ramis fasciculatis, foliis erectis densissime imbricatis lineari-lanceolatis acuminatis nervo lato excurrente cuspidatis supremis piliferis, capsula subrotundata inclinata, operculo oblique rostellato.—*Schwægr. Suppl. t. 130*; *Fl. Antarct. pp. 182, 411*; *Fl. N. Zeal. p. 87*; *Mitten, in Journ. Linn. Soc. ined.*

HAB. Rivulet behind Cumming's Head, Western Mountains, *Archer*.

DISTRIB. New Zealand, *Fuegia*.

2. **Conostomum pusillum** (*Hook. fil. et Wils. Fl. Antarct. p. 88. t. 86. f. 2*); monoicum, caule humili, foliis suberectis laxè imbricatis lanceolato-acuminatis laxè reticulatis nervo angusto excurrente subpiliferis margine reflexis duplici serie serratis, capsula inclinata demum cernua.—*C. parvulum, Hampe, Plante Muellerianæ in Linnea.*

HAB. Sides of banks: Hill, Back River. On rocks. (*Oldfield, 124.*) The Falls, and rivulet behind Cumming's Head, Western Mountains, *Archer*.

DISTRIB. New Zealand.

#### Tribe XIV. FUNARIACEÆ.

#### Gen. XXXIX. PHYSCOMITRIUM, *Brid.*

*Peristomium* nullum. *Capsula* erecta, pyriformis, symmetrica, exannulata. *Operculum* conicum. *Calyptra* vesiculari-cucullata.—*Florescentia, habitus, etc., omnino Funariæ.*

1. **Physcomitrium apophysatum** (*Tayl. in Lond. Journ. Bot. 1846, p. 43*); caule brevi, foliis erecto-patentibus ovatis acuminatis subserrulatis concavis evanidinerviis, seta brevi, capsula erecta clavato-pyriformi siccitate sub ore constricta.—*Hook. fil. et Wils. Fl. N. Zeal. p. 91. t. 86. f. 6.* *Entosthodon, Mitten, in Journ. Linn. Soc. ined.*



HAB. The Hummocks, *Archer*.

DISTRIB. New Zealand, Australia.

2. *Physcomitrium laxum* (Hook. fil. et Wils. Fl. Antarct. p. 399. t. 151. f. 5); "cæspites laxe coherentes, altiusculi; caulis robustus, subclatus, laxifolius; folia caulina erecto-appressa, laxe conferta, e basi angustiore longiuscula spathulato-ovato-acuminata, integra, e cellulis magnis laxissimis lutescentibus reticulata, nervo ultra medium evanido; seta semiunciali; capsula obovata."—*Mitten*, in *Journ. Linn. Soc. ined.*, sub *Entosthodon*.

HAB. On stones: rivulet near Cumming's Head, Western Mountains, *Archer*.

DISTRIB. Kerguelen's Land, Australia.

3. *Physcomitrium conicum* (Mitten, in *Journ. Linn. Soc. ined.*); "*P. pyriformi* simile folisque conformibus serrulatis cellulis fere dimidio minoribus marginalibus intensiore coloratis, theca in pedunculo bilineari pyriformi, operculo depresso conico umbonato."

HAB. Leith's Creek, *Archer*.

Less than the usual states of *P. pyriforme*, but very similar to it in appearance.—*Mitten*, *l. c.*

#### XL. ENTOSTHODON, *Schwagr.*

*Peristomium simplex*; dentes 16, infra capsulae orificium adnati, simplices vel gemelli, lanceolati, intus trabeculati, siccitate erecti. *Capsula* erecta, pyriformis, symmetrica. *Operculum* plano-convexum. *Calyptra* vesiculari-cucullata.—Florescentia, habitus, etc., *Funaria*.

1. *Entosthodon gracilis* (Hook. fil. et Wils. Fl. N. Zeal. p. 91. t. 86. f. 7); caule brevissimo, foliis erectis conniventibus subellipticis acutis concavis subcarinatis integerrimis evanidinerviis, seta gracili elongata sinistrorsum tortili, capsula erecta ex apophysi angustiore plicata pyriformi exannulata, operculo planiusculo.

HAB. Gullies Road, Brown's River, growing with *Hypnum limatum*. Hillside, among grass: New Norfolk. (Specimens few and immature.) (*Oldfield*, 337.)

DISTRIB. New Zealand.

2. *Entosthodon productus* (Mitten, in *Journ. Linn. Soc. ined.*); "monoicus, parvulus, humilis, foliis inferne ovatis in acumen lanceolatum angustatis integerrimis nervo sub apice evanido, cellulis elongatis, theca in pedunculo bilineari parva ovali, operculo depresso-convexo umbonato, peristomio nullo?" (TAB. CLXXV. Fig. 1.)

HAB. On the earth: behind Cumming's Head, Western Mountains, *Archer*.

A small species, allied in the form of its leaves to *E. Mittenii*, Dz. and Molk. The fruit too young to exhibit the peristome, if indeed that organ is present. *Mitten*, *l. c.*—PLATE CLXXV. Fig. 1; 1, leaf; 2, capsule:—both magnified.

#### Gen. XLI. FUNARIA, *Schreb.*

*Peristomium duplex*; *externum*, dentes 16, obliqui, lanceolato-subulati, crebre articulati, intus trabeculati; *internum*, basi dentibus adnatum, processus sedecim lanceolatos planos dentibus oppositos sistens. *Capsula* pyriformis, gibba, inclinata vel cernua, orificio obliquo. *Annulus* compositus vel nullus. *Operculum* subconicum, breve. *Calyptra* inferne inflata, superne subulata, demum latere fissa.—Florescentia *monoica*: fl. masc. *discoideus*; antheridia *paraphysibus clavatis immixta*. Folia laxe reticulata, tenera.





1. **Funaria hygrometrica** (Hedw. Sp. Musc. p. 172); foliis superioribus conniventibus late ovali-lanceolatis concavis integerrimis nervo continuo, perigonalibus apice serratis, capsula incurvo-pyriformi sicca plicata ore corrugata, annulo composito, operculo convexo, seta plus minus arcuata.—*Br. et Schimp. Bryol. Europ. t. 305.*

HAB. Grass-tree Hill, Brown's River, Back River, New Norfolk. (*J. D. II.*) (*Gunn.*) (*Oldfield, 127, 133, 137-8.*) (*Lyall.*) On stones of fossiliferous limestone, and walls, Cheshunt, *Archer.*

DISTRIB. All parts of the world.

2. **Funaria crispula** (Hook. fil. et Wils.); foliis patentibus siccitate laxè crispatis obovatis apiculatis concaviusculis subserrulatis evanidinerviis, seta breviuscula sinistrorsum torta, capsula globoso-pyriformi curvata brevicolla, operculo planiusculo.—*F. radians, Mitten, in Journ. Linn. Soc. ined.* (TAB. CLXXV. Fig. 2.)

HAB. On rocks: on the Kermadie Rivulet, South Huon. (*Oldfield, 57.*) (Specimens few and imperfect.) Port Sorrell, bank near Cheshunt, and on rocks, north side of Cataract, Launceston, *Archer.*

Allied to *F. glabra*, Taylor, but differs in the form of the capsule and in the crisped foliage.—*Peristome* double, inner yellow. *Annulus* none? *Spores* rather large, granular, reddish.—PLATE CLXXV. Fig. 2; 1, plant; 2, leaf; 3, apex of ditto; 4, peristome:—*all magnified.*

#### Tribe XV. SPLACHNEÆ.

#### Gen XLII. SPLACHNUM, Linn.

*Peristomium simplex*; *dentes* 8 vel 16, lineari-lanceolati, plani, haud trabeculati, plus minus per paria approximati, partimque connati, rarius æquidistantes, hygroscopici, siccitate nunc reflexi nunc erecto-inflexi, infra capsulæ orificium adnati. *Capsula* erecta, ovalis, oblonga vel conica, exannulata, apophysi (capsula ipsa sæpe majore) suffulta. *Operculum* conico-convexum. *Calyptra* conico-mitræformis, lacera, vel cucullata, basi integra vel inflexo-appendiculata, nuda vel pilosa. *Spore* minutæ, radiatim (lineolis sporarum 6-8) dispositæ.—*Florescentia monoica vel dioica*: fl. masc. *discoideo-capituliformes*; antheridia *paraphysibus clavatis immixta*. *Folia mollia, laxè areolata, evanidinervia.*

§ 1. EREMODON (Bridel).—*Dentes* 8, æquidistantes, siccitate erecto-incurvi.

1. **Splachnum (Dissodon) callophyllum** (C. Mueller, Bot. Zeit. 1851, p. 546); "crespites laxi, inferne tomento purpureo intertexti, lati; caulis tenerrimus, ascendens, subelatus, late foliosus, amœne pallide virens, flaccidus; folia caulina laxè imbricata, tenerrima, flaccida, e basi angusta late spatulato-ovalia, cuspidata, ubique e cellulis maximis amœne chlorophyllosis tenerrimis mollissimis rhombeis basi elongate quadratis chlorophyllosis reticulata, margine e medio usque ad apicem summum argute serrata, nervo subtenui virente excurrente percursa; perichætalia longius cuspidata, omnia cuspidè flaccidissimo molli; theca in pedunculo longiusculo crassiusculo rubente geniculato ascendente, sensim in collum thecæ longiusculum angustum incrassato erecta, anguste cylindrica, sed medio amplior, microstoma, olivacea, deiu fuscens, sæpius madore ad partem dimidiam superiorem obliqua, operculo cupulato obtuso obliquo brevissimo; peristonii dentes erecti, madore conniventes, breves, infra orificium oriundi, flavescentes, opaci."—*C. Mueller, l. c. (Mitten, in lit.) Eremodon robustus, Hook. fil. et Wils. Fl. N. Zeal. p. 93. t. 87. f. 2.*

HAB. Fern-tree Valley, Mount Wellington, *Mossman.*

DISTRIB. New Zealand.

2. **Splachnum Octoblepharum** (Hook. Musc. Exot. t. 167); foliis obovatis longo acuminatis sub-



piliferis integerrimis, capsula clavata, peristomii dentibus octo-geminatis, calyptra nuda.—*Schwægr. Suppl.* t. 129. *Dissodon plagiopus*, C. Mueller, *Bot. Zeit.* 1851, p. 547, *sic Mitten, in lit.*

Var.  $\gamma$ . *majus*; foliis majoribus latioribus.—*Fl. Antarkt.* p. 12. t. 57. f. iv. 6.

HAB. Moist places, not uncommon on cow-dung. (*Gunn*, 7, 1624.) (*J. D. II.*) Near South Port. Coal River Tier, near Richmond, and Brown's River Gully. (*Oldfield*, 67, 331, 335.) Sand Hill. On logs: Smith's Creek. (*Archer*.) Var.  $\gamma$ . Johnny's Creek. (*Oldfield*, 122.) Found by Mr. Valentine growing on the bones and decayed clothing of a bush-ranger, at the base of the Western Mountains, Feb. 1845.

DISTRIB. New Zealand, Australia, Antarctic Islands.

3. *Splachnum Gunnii* (Hook. et Wils. in *Lond. Bot. Journ.* vii. p. 26. t. 1 B.); caule rigidiusculo crasso breviusculo radice ferrugineis tomentoso, foliis squarrosis obovatis vel spatulatis acutiusculis concaviusculis apice grossiuscule dentatis evanidinerviis purpurascens, seta brevi crassa, capsula conica, apophysi maxime dilatata subplicata depressa, peristomii dentibus octo siccitate erectiusculis incurvis, calyptra minuta conica basi inflexa nuda.

HAB. On dead Fern-trees: Acheron River. (*Gunn*, 1625.)

A very remarkable species.—*Capsule* with a large oblate apophysis, pale (as if pulverulent), of firm texture, scarcely altered when dry. *Seta* red. *Leaves* tinged with red, pale, not crisped when dry.—Whole plant about  $\frac{1}{4}$  inch in length. Dioicous?

#### Tribe XVI. BUXBAUMIÆ.

##### Gen. XLIII. BUXBAUMIA, *Haller*.

*Calyptra* cylindrico-campanulata, parva, operculum tegens, fugax, coriacea, interdum latere fissa. *Peristomium* duplex: *exterius* nunc membrana solida irregulariter inciso-emarginata e strato cellularum duplici conformata opaca et obscure rufescens, nunc dentes inæquales moniliformi-articulati vallorum instar angust solidi; *interius* membrana albida tenerrima in conum tubulosum producta valde acute-angulato-plicata, siccitate leviter tortuosa angulosa. *Columella* in operculum exserta et cum eodem decidua.—C. Mueller, *Syn. Musc.* i. p. 151.

1. *Buxbaumia Tasmanica* (Mitten, in *Journ. Linn. Soc.* ined.); "*B. indusiata* simillima, foliis parvis ciliatis, pedunculo nitido subscabro, theca suberecta ovata superficie superiore planiuscula immarginata, inferiore convexa, operculo conico."

HAB. Cheshunt, *Archer*.

Closely resembling *B. indusiata*, but differing in its nearly smooth, shining seta.—*Peristome* apparently composed of smooth bladder cells, scarcely free from the internal membrane.—All the capsules yet seen, although fully formed, are too immature to show the perfectly developed peristome, or if the external capsular wall rolls off as in *B. indusiata*.—Mitten, *l. c.*

#### Tribe XVII. POLYTRICHACEÆ.

##### Gen. XLIV. POLYTRICHUM, *Dill., Linn.*

*Peristomium* simplex; dentes 32-64, raro 16, breves, ligulati, inflexi, duriusculi, e filis inarticulatis duplici lamina dispositis contexti, haud hygroscopici, epiphragma inter apices dentium sustentum. *Calyptra* parva, cuculliformis, plerumque indumento villosa vestita, interdum nuda.



Subgenus 1. **ATRICHUM**, P. Beauv.—*Calyptra anguste cucullata, elongata, nuda, apice tantum spinulosa. Capsula cylindrica. Operculum tenuirostre. Folia lanceolata-ligulata, nervo angusto, parce lamellosa, subflaccida.*

1. **Polytrichum angustatum** (Hook. Musc. Exot. t. 50); dioicum, gracile, foliis elongato-lanceolatis erecto-patentibus anguste limbatis superne spinoso-serratis siccitate crispis, capsula suberecta tenuicylindracea, operculo tenuirostri, calyptra nuda.—*Atrichum angustatum, Bryol. Europ. t. 411. A. ligulatum, Mitten, in Kew Miscel. 1857, p. 262; idem in Journ. Linn. Soc. ined.*

Var. *polysetum*; setis aggregatis.

HAB. South Port Narrows, and Creek Town, etc. (Gunn, 25.) (Oldfield, 68.)

DISTRIB. Europe, North America, East India.

Subgenus 2. **PSILOPILUM**, Bridel.—*Peristomii dentes 16-32, brevissimi. Capsula ovato-ventricosa. Calyptra apice pilosiuscula, inferne nuda.*

2. **Polytrichum australe** (Hook. fil. et Wils. Fl. N. Zeal. p. 95. t. 87. f. 6); dioicum, caule brevi, foliis confertis erecto-patentibus ovato-subulatis rigidulis canaliculatis integerrimis dense lamellatis siccitate erectis incurvis, seta breviuscula, capsula inclinata ovata ventricosa microstoma, operculo rostellato, calyptra brevi apice scabra.

HAB. Hobarton, J. D. H. On stones and on the earth: rivulet behind Cumming's Head, Western Mountains, Archer.

DISTRIB. New Zealand, Hermit Island, Cape Horn.

3. **Polytrichum (Psilopilum) crispulum** (Hook. fil. et Wils.); dioicum, foliis laxo patentibus subflaccidis siccitate crispulis incurvis lanceolato-oblongis acutiusculis denticulatis anguste lamellatis, seta elongata, capsula inclinata ovata microstoma, operculo rostrato, peristomii dentibus 32 minutis angustis.—*Fl. N. Zeal. p. 95. t. 87. f. 3.*

HAB. Western Mountains, Archer.

DISTRIB. New Zealand.

Subgenus 3. **CYPHOMA**, Hook. fil. et Wils.—*Capsula superne plana, inferne gibba. Calyptra subnuda. Peristomii dentes 32-64. Folia argute serrata, basi vaginantia, rigida.*

4. **Polytrichum Magellanicum** (Hedw. Sp. Musc. t. 20); caule ramoso, foliis patentibus recurvis rigidis e basi ovata vaginante subulatis serratis, capsula inclinata vel horizontali oblonga semitereti, operculo conico-rostrato, calyptra pilosiuscula.—*Fl. Antarct. pp. 132, 411. t. 59. f. 3; Fl. N. Zeal. p. 95. Polytrichadelphus Magellanicus, Mitten, in Journ. Linn. Soc. ined. Catharinea Polytrichadelphus innovans, C. Mueller; conf. Mitten, l. c.*

HAB. Gully above the Wellington Falls, Mount Wellington. (Oldfield, 248, \*295.) Cheshunt, Archer. Mount Wellington, with *P. juniperinum*, Mossman.

DISTRIB. New Zealand, Antarctic Islands, South America.

Subgenus 4. **POGONATUM**, P. Beauv., Brid., Br. et Sch.—*Calyptra villosa. Capsula teres.*

5. **Polytrichum (Pogonatum) alpinum** (Linn.); foliis e basi vaginante longe et anguste linealilanceolatis concavis margine argute serratis apice dorso spinulosis lamellis margine sensim incrassatis, capsula erecta vel obliqua ovata et ovali-oblonga levi collo perbrevis tumidulo instructa, operculo longius rostello, calyptra villo fuscescente capsulam ex parte vel omnino obtegente, peristomii dentibus breviusculis, subirregularibus.—*Bryol. Europ. p. 9. (Mitten, in lit.)*

HAB. The Falls, and rivulet behind Cumming's Head, Western Mountains, Archer.

DISTRIB. Australia, Europe, North America.



Subgenus 5. *Polytrichum*, Bridel.—*Capsula angulata, apophysi discoidea instructa. Operculum brevius rostratum. Calyptra villosa. Peristomii dentes 64. Columella alata.*

6. *Polytrichum commune* (Linn. Sp. Pl. ii. 1573); caule elongato, foliis e basi vaginante patentirecurvis lineari-lanceolatis longis serratis lamellis margine subbifidis obtectis, perichæcialibus membranaceis erectis vaginantibus, capsula tetragona, operculo brevirostri.—*Bryol. Europ. t. 425.*

Var.  $\beta$ ; caule gracili brevioris, foliis brevioribus erecto-patentibus confertis siccitate erectis.

HAB. Bogs on hillside, Brown's River. (Gunn, 1591.) (*Oldfield*, 327.) Cheshunt, *Archer*. Var.  $\beta$ . Bogs near the Huon. (*Oldfield*, 297.)

DISTRIB. Common in all parts of the world.

7. *Polytrichum juniperinum* (Hedw. Sp. Musc. t. 18); foliis patentibus subrecurvis e basi vaginante lineari-lanceolatis margine membranaceo inflexis integerrimis brevi-aristatis, capsula quadrangulari siccitate horizontali, operculo rostellato.—*Bryol. Europ. t. 423.*

HAB. On the ground: summit of Mount Wellington. Falls, New Norfolk. (Gunn, 5.) (*Lyall*, 103.) (*J. D. H.*) Elliott Rivulet, *Archer*; gathered also by *Mossman*.

DISTRIB. Europe, Asia, North America.

#### Gen. LX. DAWSONIA, *Brown*.

*Peristomium* penicillatum, ciliis numerosissimis, capillaribus, erectis, æqualibus, inarticulatis, capsulæ ore et columellæ apice impositis. *Calyptra* subulata, latere fissa, indumento e villis intertextis vestita. *Capsula* hinc plana, inde convexa. *Operculum* subulatum.—Habitus, folia, florescentia, etc., omnino *Polytrichi*.

1. *Dawsonia superba* (Greville, in Ann. Nat. Hist. 1847, p. 226. t. 12); caule elongato, foliis e basi ovato-subrotunda amplexicauli linearibus longissimis rigidis spinoso-serratis erecto-patentibus, seta brevi crassa, capsula foliis exserta, calyptra parva pallidioris pilis brevibus vestita.—“*D. longifolia, R. Br.*” *Gunn, in sched.*

HAB. Emu Bay. (Gunn, 1590.) Cheshunt, *Archer*.

DISTRIB. New Zealand.

#### Section 2. PLEUROCARPI.

#### Tribe XVIII. LEUCODONTÆ.

#### Gen. XLVI. LEUCODON, *Bridel*.

*Peristomium simplex*; dentes 16, basi connati, perforati, bipartiti vel bifidi. *Calyptra* cuculliformis. *Capsula* erecta, æqualis, exannulata. *Florescentia* dioica.—Folia dense imbricata, plerumque enervia, plicato-striata vel levia, anguste areolata.

1. *Leucodon Lagurus* (Hook. Musc. Exot. t. 126); caule ramoso tomentoso, foliis imbricatis oblongo-ovatis concavis piliformi-acuminatis estriatis subenerviis, capsula erecta subcylindrica, operculo oblique rostrato.—*Schwagr. Suppl. t. 133. Stercodon Lagurus, Mitten, in Journ. Linn. Soc. ined.*

HAB. On dry rocks, at an altitude of 1000 feet, near the top of Mount Wellington, on the south side. (*J. D. H.*) (*Oldfield*, 116.) Cheshunt, *Archer*.

DISTRIB. Campbell's Island, Hermite Island, Straits of Magellan.

Leaves very glossy, bright green, nerveless or two-nerved at the base, variable, sometimes single-nerved half-





way. *Seta* near 1 inch long. *Peristome* white. *Operculum* above half as long as the capsule. *Calyptra* large, longer than the capsule, cucullate, pale yellowish-brown. *Male surculi* extremely slender, very different in aspect from the fertile stems with which they are intermixed, bearing piliferous leaves variable in shape, often lanceolate and very small. *Male flower* with a few roundish antheridia, and no paraphyses.

Gen. XLVII. CLADOMNION, *Hook. fil. et Wils.*

*Peristomium* duplex; *externum*, dentes 16, lanceolati; *internum*, membrana in processus 16 carinatos profunde divisa. *Capsula* erecta, æqualis, brevipedicellata. *Calyptra* cucullata, magna. *Operculum* rostratum.—*Caulis repens*; *surculi erecti, elongati, subsimplices*. *Folia plicata*. *Habitus Leucodontis*.

§ 1. *Capsula sulcata*. *Folia enervia*.

1. **Cladomnion sciuroides** (*Leskea*, *Hook. Musc. Exot. t. 175*); dioicum, surculis vage ramosis, ramis subcompressis incurviusculis, foliis erecto-patentibus subsecundis ovatis acuminatis plicato-striatis enerviis apice serratis, capsula erecta oblonga sulcata brevipedicellata, operculo conico-subulato.—*Stereodon* (*Achyrophyllum*) *sciuroides*, *Mitten, in Journ. Linn. Soc. ined.*

*HAB.* On twigs and trunks of trees, in dense woods: Huon River. (*J. D. II.*) Black River Gully, Johnny's Creek. (*Oldfield, 77.*) On trees, in creeks, *Archer*.

*DISTRIB.* New Zealand.

§ 2. *Capsula laevis*. *Folia nervosa*.

2. **Cladomnion setosum** (*Anictangium*, *Hedw. Sp. Musc. t. 5*); dioicum, surculis elongatis subsimplicibus, foliis confertis subsecundis e basi ovata subulato-setaceis solidinerviis serratis, capsula oblonga erecta brevipedicellata, operculo rostrato.—*Neckera setosa*, *Hook. Musc. Exot. t. 8.*

*HAB.* Tasmania, *Gunn*.

*DISTRIB.* New Zealand, South America.

Tribe XIX. LESKEACEÆ.

Gen. XLVIII. LESKEA, *Hedwig*.

*Peristomium* duplex; *externum*, dentes 16, anguste lanceolati, tenues, intus trabeculati; *internum*, processus totidem e membrana basilari angusta procedentes, plus minus perfecti. *Capsula* erecta, oblonga, alte pedicellata. *Calyptra* cucullata.—*Caulis primarius repens*; innovatio e ramis procumbentibus nec e stolonibus. *Folia opaca, chlorophyllosa, nunquam scariosa, plerumque papillosa, costata*; areolis minutis hexagono-quadratis, inferne rectangularis.

1. **Leskea imbricata** (*Hook. fil. et Wils.*); monoica, caule repente, surculis erectis vage parceque ramosis, ramulis curvulis superne incrassatis, foliis patentibus siccitate appresso-imbricatis confertis rotundo-ovatis concaviusculis margine subplanis nervo valido sub apice evanido subrotundis minutis. (*TAB. CLXXV. Fig. 3.*)

*HAB.* Moist rocks? on Mount Wellington. (*Oldfield.*) (Specimens few, and without fruit.)

*Stem*  $\frac{1}{2}$  inch. *Foliage* brownish or lurid.—In habit approaching to *Pterogonium gracile*.

This is perhaps a young state of *Cryphæa*. *Mitten, in lit.*—*PLATE CLXXV. Fig. 3*; 1, portion of branch; 2 and 3, leaves:—*all magnified.*



## Tribe XX. PILOTRICHEÆ.

Gen. XLIX. METEORIUM, *Bridel.*

*Peristomium duplex*; *externum*, dentes 16, erecti; *internum*, cilia totidem alternantia, basi libera vel membrana brevissima connexa. *Capsula* æqualis, erecta, exannulata, brevipedicellata. *Operculum* rostratum. *Florescentia* dioica. *Caulis* repens.—*Surculi penduli, ramosi*. *Ramis patentibus*.

1. **Meteorium molle** (*Leskea*, Hedw. Musc. Frond. t. 40); surculo elongato debili pendulo flexuoso, ramis subsimplicibus, foliis imbricatis subspathulato-ellipticis oblongis obtusis concavis integerrimis enerviis perichætalibus vaginantibus duplo longioribus, capsula ovata brevipedicellata, operculo rostrato, calyptra pilosiuscula dimidiata.—*Stereodon* (*Isothecium*) *molle*, *Mitten*, in *Journ. Linn. Soc. ined.*

Var. *β. majus*; ramis tumidis, seta longiori, capsula inæquali.

HAB. In dense woods, pendent from the branches of trees. (*J. D. H.*) (*Gunn*, 1602, 40.) (*Lyall*, 102.) *Brown's River Gully*. (*Oldfield*, 69.) *Cheshunt*, *Archer*.

DISTRIB. New Zealand.

2. **Meteorium cuspidiferum** (*Neckera*, Taylor, MSS.); surculo elongato ramoso pendulo flexili, ramis patentibus simplicibus, foliis laxè imbricatis erecto-patentibus siccitate erectis subappressis cordato-ovatis semi-amplexicaulibus apiculatis integerrimis subcoriaceis carinatis substriatis evanidinerviis minutissime areolatis basi auriculis denticulatis.—*Fl. N. Zeal.* p. 101. *Trachypus Hornschuchii*, *Mitten*, in *Journ. Linn. Soc. ined.*

HAB. On trees, *Gunn*, *Lawrence*. (Barren and scanty specimens.) *Cheshunt*, *Archer*.

DISTRIB. New Zealand, Norfolk Island, East Indies.

3. **Meteorium cerinum** (*Hook. fil. et Wils.*); caule pendulo elongato, ramis patentibus simplicibus, foliis patentibus siccitate crispato-undulatis cordato-ovatis acuminatis integerrimis evanidinerviis, auriculis subintegræ.—*Trachypus cerinus*, *Mitten*, in *Journ. Linn. Soc. ined.* (TAB. CLXXV. Fig. 4.)

HAB. On trees. (Barren specimens.) (*Gunn*, 1605.) On trees, in creeks, *Archer*.

DISTRIB. New Zealand.

More robust than *M. cuspidiferum*.—*Leaves* yellowish, their auricles larger and reflexed when dry, texture more membranous, border pale; *areolæ* small, rhomboid, opaque; *alar cellules* oblong, narrow.—PLATE CLXXV. Fig. 4; 1, portion of branch and leaves; 2 and 3, leaves:—*magnified*.

4. **Meteorium filipendulum** (*Hook. fil. et Wils.*); caule pendulo gracili elongato, ramis patentibus flexuosis simplicibus filiformibus attenuatis, foliis erecto-patentibus apice incurvis siccitate appressis ovatis acuminatis integerrimis estriatis margine planis basi subauriculatis seminerviis. (TAB. CLXXV. Fig. 5.)

HAB. On trees. (Barren specimens only.) (*Gunn*, 26, 1606.) (*Lawrence*.)

Allied to *M. flexicaule*, Taylor, in *Fl. N. Zeal.* p. 101, of which it was once considered to be a slender variety.—*Leaves* less concave, with entire auricles.—PLATE CLXXIV. Fig. 5; 1, portion of stem and leaves; 2, leaf:—*all magnified*.

5. **Meteorium flexicaule** (*Leskea*, Taylor, *Fl. N. Zeal.* p. 101); surculo elongato pendulo flexuoso, ramis patentibus simplicibus, foliis laxè imbricatis cordato-ovatis subspathulatis acuminatis concavis estriatis integerrimis (basi tantum subdenticulatis) nervo ultra-medio.—*Trachypus flexicaulis*, *Mitten*, in *Journ. Linn. Soc. ined.*

HAB. *Cheshunt*, on trees, *Archer*.

DISTRIB. New Zealand, Australia, South America.



Gen. L. CRYPHÆA, *Mohr, Bridel.*

*Peristomium duplex*; *externum*, dentes 16, angusti, erecti; *internum*, cilia totidem alternantia, basi libera, filiformia. *Capsula* æqualis, perichætio immersa, sessilis, annulata. *Operculum* conicum. *Calyptra* mitræformis, conica, glabra. *Florescentia* monoica.—*Caulis repens*. Surculi erecti, pendulive, subpinnatim ramosi. Folia ovata, integra; areolis punctiformibus.

1. **Cryphæa consimilis** (Montagne, in Ann. Sc. Nat. Cent. v. 20); surculo ramoso, ramis distantibus patentibus filiformibus, foliis ovato-lanceolatis acuminatis margine subrellexis integerrimis nervo subcontinuo, capsula oblonga perichætio pilifero immersa, operculo conico-acuto.—*Fl. N. Zeal.* 102.

HAB. On dead timber: Coal River Tier, near Richmond. (*Oldfield*, 58.) (*Gunn*, 26.)

DISTRIB. New Zealand.

2. **Cryphæa Tasmanica** (Mitten, in Journ. Linn. Soc. ined.); "monoica, ramis elongatis inferne sæpe denudatis superne ramulis brevibus ut plurimum fertilibus dense approximatis, foliis patentibus orbiculari-ovatis acutis nervo sub summo apice evanido margine e medio ad apicem minutissime sed dense serrulato nullibi recurvo cellulis minutis ovoideis ad basin angustis elongatis, perichæcialibus e basi ovali subulatis thecam ovatam longe superantibus, operculo convexo acuto peristomio interno processibus angustis dentium longitudinis in membrana brevissima, annulo duplici." (TAB. CLXXV. Fig. 9.)

HAB. On rocks: Jackey's Plain Creek, *Archer*.

More robust than *C. dilatata* or *C. Muelleri*, the margins of its leaves not recurved below, and the perichæcial leaves more subulate, but of the same habit and colour. *Mitten*, l. c.—PLATE CLXXV. Fig. 6; 1, leaf; 2, perichæcium; 3, teeth:—*all magnified*.

## Tribe XXI. NECKERACEÆ.

Gen. LI. NECKERA, *Br. et Schimp.*

*Peristomium duplex*; *externum*, dentes 16, lanceolati, intus trabeculati, vix hygroscopici; *internum*, processus 16, e membrana angusta carinato-plicata hyalina cum dentibus alternantes. *Capsula* ovalis, æqualis, erecta, mollis, exannulata, immersa vel exserta. *Calyptra* cucullata, nuda.—Folia octofariam caule inserta, distiche complanata, obliqua, transverse undulata, nitida, tenuissime areolata. *Caulis repens*. Surculi erecti, pinnatim ramosi.

1. **Neckera pennata** (Hedw. Musc. Frond. t. 19); monoica, foliis ovato-lanceolatis acuminatis apice serrulatis undulatis subnerviis, perichæcialibus internis elongato-lanceolatis acuminatis, capsula immersa, operculo brevirostri, calyptra parva vix infra operculum producta.—*Bryol. Europ.* t. 440. N. hymenodonta, *C. Mueller*, *Bot. Zeit.* 1851, p. 564; *Mitten*, in Journ. Linn. Soc. ined.

HAB. On trees. (*Gunn*, 1601.) Johnny's Creek. (*Oldfield*, 66.) Rivulets and damp copses, on trunks and branches of trees, *Archer*. Bek River, below Launceston, *Mossman*.

DISTRIB. New Zealand, Europe, North and South America, South Africa, East Indies.

Gen. LII. OMALIA, *Bridel.*

*Peristomium Hyppi*, duplex. *Capsula* ovata, cernua, longipedunculata, annulata. *Operculum* rostratum. *Calyptra* diimidata.—*Caulis repens, stolonifer*. Surculi ascendentes, pinnatim vel irregulariter ramosi. Folia octofariam inserta, distiche imbricata, complanata; lateralia obliqua, asymmetrica, basi uno latere inflexa, cæterum plana; verticalia minute areolata; nervo brevi vel obsolete. Flores monoici vel dioici.



1. **Omalia falcifolia** (Hook. fil. et Wils. Fl. N. Zeal. 115. t. 92. f. 1); dioica, surculo vage subpinnatim ramoso, ramis complanatis subsimplicibus, foliis distiche imbricatis oblongo-acinaciformibus obtusis enerviis integerrimis, seta lævi, capsula elliptico-oblonga nutante, operculo conico.—Hypnum falcifolium, *Nob. in Lond. Journ. Bot.* 1844, p. 554.

HAB. Tasmania. (Barren specimens only.) (Gunn.)

DISTRIB. New Zealand.

Gen. LIII. TRACHYLOMA, Bridel.

*Peristomium duplex*; *exterius*, dentes 16, angusti, subnodulosi, duri; *interius*, cilia totidem cum iis alternantia, e membrana brevi orta, angusta, carinata, nodulosa. *Calyptra* cuculliformis. *Capsula* erecta, oblonga, subæqualis, curvula, exannulata.—Folia *subenervia*, *complanata*. Habitus *dendroideus*. Caule *repente*. Surculo *superne pinnatim ramoso*.—*Fl. N. Zeal.* p. 103.

1. **Trachyloma planifolium** (*Neckera planifolia*, Hook. Musc. Exot. t. 23); dioicum, surculo erecto pinnatim ramoso, ramis complanatis, foliis distiche imbricatis erecto-patentibus ovatis apice serratis subenerviis, capsula erecta subcylindrica, operculo conico subulato.—*Bridel, Bryol. Europ.* ii. 278; *Mitten, in Journ. Linn. Soc. ined.*

HAB. On dead trees, in the forests of the Esk River, *Mossman*.

DISTRIB. New Zealand.

Tribe XXII. ISOTHECIACEÆ.

Gen. LIV. ISOTHECIUM, Bridel.

*Peristomium duplex*; *externum*, dentes 16, ut in *Hypno*; *internum*, membrana in processus 16 carinatos cum vel absque ciliis interpositis profunde divisa. *Calyptra* cuculliformis. *Capsula* erecta, æqualis, vel e curvatura pedicelli cernua, subæqualis, annulata.—Habitus *dendroideus*. Rhizoma *repens*. Surculi *inferne nudi, rigidi, superne pinnatim ramosi*.

§ 1. *Fronde diffusa, suberecta*.

1. **Isothecium Arbuscula** (*Hookeria*, Smith, Linn. Trans. ix. p. 280. t. 23); dioicum, surculo bipinnatim ramoso, foliis imbricatis patentibus ovatis concavis integerrimis basi obsolete binerviis, seta breviuscula flexuosa, capsula ovata suberecta vel cernua, operculo conico.—Hypnum Arbuscula, *Hook. Musc. Exot.* 112; *Schwagr. Suppl.* t. 300.

Var. *β. deflexum*; surculo laxius ramoso arcuato deflexo apice radicante, foliis remotioribus acutioribus minus concavis.—*Stereodon* (Isothecium) *deflexum*, *Mitten, in Journ. Linn. Soc. ined.*

HAB. On trees, in dense forests. (Gunn, 42, 43, 1595 a.) St. Patrick's River. (Gunn, 1595 b, 1596.) Johnny's Creek, Back River Gully. (*Oldfield*, 87, 88.)

DISTRIB. New Zealand.

2. **Isothecium gracile** (Hook. fil. et Wils.); dioicum, caule ramoso, ramis gracilibus recurvis, foliis erecto-patentibus secundis ellipticis concavis obtusiusculis subdenticulatis enerviis, perichætialibus squarrosis acuminatis, seta longiuscula lævi, capsula ovata cernua, operculo conico.—*Fl. Antarct. part 1.* p. 29. t. 61. f. 3; *Fl. N. Zeal.* p. 106, et *Hypnum gracile eorund. l. c.* p. 112. *Stereodon* (Isothecium) *gracilis*, *Mitten, in Journ. Linn. Soc. ined.*

HAB. On stones, in rivulets; Jackey's Plain Creek, near Cheshunt, *Archer*.

DISTRIB. Lord Auckland's Islands, New Zealand.





3. **Isothecium pumilum** (Hook. fil. et Wils.); dioicum, caule dendroideo pinnatim ramoso inferne squamoso, ramis complanatis, foliis quadrifariis ovatis vel oblongo-ovatis serrulatis nervo tenui ultra medio, perichætialibus subsquarrosis ovato-ligulatis, seta breviuscula, lævi, capsula ovata cernua annulata, operculo rostrato.—*Neckera* (Thamnum) *rivalis*, *Mitten, in Journ. Linn. Soc. ined.* (TAB. CLXXV. Fig. 7.)

HAB. On rocks. (*Gunn.*) On stones and rocks: copse, West End Rivulet and Stackhouse Falls, Cheshunt, *Archer*.

Thrice as small as *I. paudum*, Hook. fil. et Wils. Fl. N. Zeal. p. 105. t. 89. f. 1.—*Leaves* more evidently serrate, with a short, very faint nerve. *Stem* 1 inch. *Seta* scarcely  $\frac{1}{4}$  inch. *Operculum* as long as the capsule. *Peristome* double; outer teeth pale yellow.—PLATE CLXXV. Fig. 7; 1, part of stem and leaves; 2, leaf; 3, perichætium and capsule, etc.:—*all magnified.*

§ 2. HYPNODENDRON.—*Rami in frondem horizontalem deltoideo-subrotundam dispositi. Innovationes e basi frondis orti. Capsula striata.*

4. **Isothecium spininervium** (*Hypnum*, Hook. Musc. Exot. t. 29); dioicum, comosum, ramis simplicibus complanatis, foliis appresso-patulis subdistiche imbricatis ovatis acutis margine dorsoque serratis solidinerviis, capsula oblonga sulcata cernua, operculo rostrato capsula brevior.—*Schwægr. Suppl. t. 258.* *Trachyloma arcuatum*, *Mitten, in Journ. Linn. Soc. ined.*

HAB. In woods, rare. Back River Gully, New Norfolk. (*Gunn.*) (*J. D. II.*) (*Oldfield, 65.*) On the ground, and on stones in the bed of rivulets: Cheshunt, *Archer*.

DISTRIB. New Zealand, Australia.

5. **Isothecium Archeri** (Mitten); "dioicum, ramis erectis inferne simplicibus sparse foliosis superne pulchre pinnatis plumiformibus, ramulis patentibus distichis in frondem brevem subtriangularem dispositis, foliis bifarie compressis ovato-lanceolatis acutis nervo percurrente, dorso apice denticulato, marginibus simpliciter serratis, cellulis longitudine circiter  $\frac{1}{10}$  latitudine  $\frac{1}{10}$  unc. metientibus dorso minute papilloso-punctatis, seriabus foliorum in latere dorsali minoribus sed conformibus, perichætialibus e basi late ovata tenui acuminatis erectis, theca in pedunculo vix unciali horizontalis oblonga sulcata, operculo longi-curvirostrato, peristomio normale."—*Trachyloma Archeri*, *Mitten, in Journ. Linn. Soc. ined.* (TAB. CLXXV. Fig. 8.)

HAB. Ovens Creek, Cheshunt, *Archer*.

Two or three inches in height, pale yellowish-green, shining. Nearly allied to *H. arcuatum*, Hedw., but its branches are more regularly disposed, forming a subtriangular frond, and readily distinguished by its minutely dotted leaves and short capsule. *Mitten, l. c.*—PLATE CLXXV. Fig. 8; 1, leaf; 2, ditto of perichætium; 3, capsule:—*all magnified.*

6. **Isothecium comosum** (Labill. Pl. Nov. Holl. ii. 107. t. 253. f. 2); dioicum, dense cæspitosum, caule tomentoso apice comoso, ramis subverticillatis brevibus densis suberectis, foliis patentibus subsecundis rigidis e basi subauriculata ovato-lanceolata subito acuminatis apice serrulatis nervo crasso solido tereti dorso lævi excurrente setaceis, perichætialibus longioribus erectis, capsula in pedunculo mediocri pendula oblonga sulcata, operculo longirostri.—*Bridel, Bryol. Univ. ii. 374.* *Hypnum comosum*, *Schwægr. Suppl. t. 91.*

HAB. Tasmania. (Barren specimens only.) (*Gunn.*)

DISTRIB. New Zealand, Lord Auckland's Islands.

7. **Isothecium Sieberi** (*Hypnum*, C. Mueller, Musc. Syn. ii. 504); dioicum, laxè cæspitosum, caule robusto tomentoso apice lateraliter (nec verticillatim) comoso, ramis crassis curvatis cirrhatis apice



subcuspidatis, foliis erecto-patentibus confertis anguste lanceolatis sensim acuminatis superne grosse serratis nervo valido concolore excurrente (acumen haud omnino occupante) carinatis margine subincrassatis, setis aggregatis mediocribus tortis, capsula horizontali sulcata, operculo longirostri.—*Trachyloma comosum*, *Mitten, in Journ. Linn. Soc. ined.*

HAB. Woods on Mount Wellington. (*J. D. II.*) (*Oldfield, 64, 103.*) River Acheron, *Gunn, 1593.* Cheshunt, *Archer.*

DISTRIB. New Zealand and Lord Auckland's Islands.

*Leaves* longer than in *I. comosum*, more crowded, with large serratures and areolæ, more distinctly striated when dry; nerve less solid, not cylindrical, but keeled at the back. *Branches* longer, deflexed. *Habit* more robust. *Colour* greenish, not fulvous.

8. *Isothecium Colensoi* (Hook. fil. et Wils.); dioicum, laxè cæspitosum, caule breviusculo tomentoso apice lateraliter pinnatim comoso, ramis breviusculis decurvatis, foliis laxiuscule patentibus subsecundis rigidiusculis e basi cordato-lanceolata setaceo-acuminatis apice argute serratis nervo crassiusculo inferne dorso punctulata apice argute spinuloso excurrente, seta prælonga, capsula subpendula elongate cylindrica curvula octosulcata, operculo longirostri.—*I. comosum*, *Hook. fil. et Wils. Fl. N. Zeal. 106, ex parte.* (TAB. CLXXVI. Fig. 1.)

HAB. Tasmania. (Barren specimens only.) (*Gunn.*)

DISTRIB. New Zealand.

Overlooked as a variety of *I. comosum* in the 'Flora of New Zealand,' but on examination it appears to be quite distinct. It differs from both of the preceding species in the elongated capsule and seta, and from *Hypnum comatum*, C. Mueller, Syn. Musc. ii. 692, in the more strongly and sharply serrated apex of the leaf, which has the nerve constantly punctulate at the back, more solid at the excurrent apex, where it is cylindrical and spinulose.—*Areolæ* of the leaf wider; alar cellules oval-oblong, numerous, not coloured. *Colour* of the foliage deeper green. *Stem* shorter than in *I. Sieberi*. *Branches* few, scarcely  $\frac{1}{4}$  inch long, not attenuated, more rigid, not whorled, but forming a lateral frond. *Capsule* (with the operculum) about  $\frac{1}{4}$  inch long. *Teeth* of the peristome pale yellow.

"This appears to me to be the *H. comatum*, C. Mueller." *Mitten, in lit.*—PLATE CLXXVI. Fig. 1; 1, leaf; 2, capsule:—both magnified.

### Tribe XXIII. HYPNACEÆ.

#### Gen. LV. HYPNUM, Linn.

*Peristomium duplex*; *externum*, dentes 16, lanceolati, reflexiles, intus trabeculati, linea media notati; *internum*, membrana carinato-sulcata in processu 16 carinatos ciliis interpositis mediotenus fissa. *Calyptra* cuculliformis, glabra. *Capsula* inæqualis, arcuata, cernua, plerumque annulata, longe pedicellata.—*Habitus varius*. *Caulis plerumque repens, vage vel pinnatim ramosus.*

§ 1. TAMARISCINA.—*Caule pinnatim ramoso, stupa viridi e fibris ramosis composita villosa.*

1. *Hypnum læviusculum* (Mitten); "dioicum, *II. tamariscino* simillimum, caule foliolis brevibus dense vestito, foliis ejusdem latitudinis subæquilateri triangularibus nervo crasso concolori in acumen angustum elongatum flexuosum excurrente, marginibus inferne recurvis integerrimis cellulis minutis subobscuris læviusculis, rameis basi ovatis acuminatis obtusiusculis concavis ramulinisque ovato-oblongis compressis obtusis obscuris subintegerrimis minutissime papillosis sublævibus, perichætialibus erectis pallidis ovato-lanceolatis in acumen elongatum flexuosum subserrulatum attenuatis, margine apicem versus partis lateris ciliato, theca in pedunculo elongato rubro cylindrica arcuata horizontalis peristomio normale."—*Leakea læviuscula*, *Mitten, in Journ. Linn. Soc. ined.*



HAB. Cheshunt, without fruit, *Archer*.

DISTRIB. New Zealand.

Size, habit, and colour of *H. tamariscinum*, but with leaves more nearly resembling those of *H. cymbifolium*, Dz. et Molk., having the nerve excurrent into a long, flexuose, slender point, and scarcely anywhere serrulate or papillose. *Mitten, l. c.*

2. ***Hypnum furfurosum*** (Hook. fil. et Wils. Fl. N. Zeal. 107. t. 88. f. 7); dioicum, caule elongato rigidulo procumbente furfuroso crebre bipinnato, ramulis gracilibus attenuatis, foliis caulinis squarrosis cordato-acuminatis carinato-concavis plicatis evanidinerviis ramcis e basi patula erectiusculis siccitate incurvis ovatis acuminatis apice denticulatis dorso papillatis evanidinerviis perichætialibus anguste acuminatis denticulatis, seta lævi, capsula oblonga cernua, operculo rostrato.—*Leskea hastata* (Hypnum), *C. Mueller*; *Mitten, in Journ. Linn. Soc. ined.* (TAB. CLXXVI. Fig. 2.)

HAB. On dead timber and stones: Back River Gully. (*Gunn.*) (*Oldfield*, 80, 323.) On stones, by rivulets: Ovens Creek, Cheshunt, and Cumming's Head, Western Mountains, *Archer*.

DISTRIB. New Zealand.

PLATE CLXXVI. Fig. 2; 1 and 2, leaves; 3, capsule:—*all magnified.*

3. ***Hypnum unguiculatum*** (Hook. fil. et Wils.); dioicum, caule tenui procumbente plus minus remote bi-(subtri-)pinnato paraphyllis parvis vestito, ramis ramulisque patentibus longiusculis attenuatis gracillimis, foliis caulinis patentibus cordato-acuminatis distantibus subplicatis subintegris ramulinis erecto-patentibus siccitate arcuato-incurvis ovatis acutis valde concavis subintegris dorso lævibus, nervo tenui pellucido evanido arcolis minute rotundis subopacis, perichætialibus longe piliformi acuminatis denticulatis intimis laciniatis, seta lævi, capsula oblonga arcuata, operculo rostrato. (TAB. CLXXVI. Fig. 3.)

HAB. Yorktown. (*Lawrence.*) (*Gunn*, 1598, 37.) Rocks: North-west Bay. (*Oldfield*, 313 b.)

DISTRIB. New Zealand. (*Sinclair.*)

Allied to the last, but more slender in habit.—*Stem* about 2 inches long, distantly branched. *Stem-leaves* small, not concealing the stem. *Branch-leaves* distant, much bent inwards when dry, but not appressed. *Seta* 1 inch. *Vaginula* hairy. *Teeth* yellow, longer than in *H. furfurosum*. *Inner peristome* reddish, with cilia.—A larger species than *H. sparsum*, Hook. fil. et Wils. Fl. N. Zeal. 109. t. 89. f. 5; leaves more acute, very concave, and more incurved when dry.—PLATE CLXXVI. Fig. 3; 1, portion of branch; 2, leaf; 3, ditto of perichætium; 4, capsule, with calyptra; 5, capsule and operculum:—*all magnified.*

4. ***Hypnum Stuartii*** (*C. Mueller, Bot. Zeit.* 1856, p. 459); "*H. hastato* simillimum, dioicum, aurescens, sed caulis inordinate ramosus, vix pinnatus, ramulis longioribus substoloniformibus instructus, filis longioribus confervoideis vel foliaceis obtectis, folia caulina majora, e basi late hastata bullato-plicata lanceolato-acuminata reflexa, margine plana vel convexa, ubique e cellulis rotundatis incrassatis tenuiter papillois areolata, nervo flavido canaliculato ante apicem evanido percursa, ramulina multo minora ovato-lanceolata, breviter acuminata, subflexuosa, magis æqualia, vix bullata, nervo tenuiore instructa, e cellulis rugulosis haud incrassatis areolata, perichætialia e basi longe vaginante late plicata pallida, margine hic illic revoluta, elongate incrassate areolata in acumen longissimum loriforme flexuosum crenulatum producta, ante apicem ciliis capillaribus lævissimis flexuosis elongatis vel brevioribus fimbriata, excurrentinervia, paraphyses numerosissimas elongatas includentia, theca in pedunculo breviusculo lævi rubente pendula turge oblonga, peristomium internum aureum secedens, ciliis ternis brevioribus interpositis."—*Mitten, in lit.*

HAB. Tasmania, *Stuart.*

§ 2. ADUNGA.—*Foliis falcatis, nervosis.*

5. ***Hypnum hispidum*** (Hook. fil. et Wils. Fl. Antarct. 28. t. 61. f. 2); dioicum, caule arcuato



vage vel subpinnatim ramoso, foliis imbricatis secundis rigidis e basi ovata subplicata longe subulato-setaceis integerrimis nervo crasso excurrente, seta breviuscula lævi, capsula ovata cernua, operculo curvirostro.—*Fl. N. Zeal. p. 107.* *Leskea hispida*, Mitten, in *Journ. Linn. Soc. ined.*

HAB. Stones in running water: Back River Creek. (Barren specimens.) (*Gunn, 44.*) (*Oldfield, 120, 121.*) Bank by Stackhouse Falls, on fossiliferous limestone: Cheshunt, *Archer.*

DISTRIB. New Zealand, Norfolk Island, Australia, Lord Auckland's Islands.

6. **Hypnum fluitans** (Linn. Fl. Succ. 1074); monoicum, caule subpinnatim ramoso tenui molle, foliis caulinis reinotis ramis falcato-secundis lanceolato-acuminatis evanidinerviis, capsula longe pedunculata oblonga arcuata cernua, operculo subconico.—*Bryol. Eur. t. 602.*

HAB. In wet places: Yorktown. (Barren specimens.) (*Gunn, 1626.*)

DISTRIB. Europe, North America, Hermite Island, Campbell's Island.

§ 3. *Foliis seminerviis patentibus, undique imbricatis.*

a. PRELONGA.—*Seta scabra. Operculo rostrato.*

7. **Hypnum muriculatum** (Hook. fil. et Wils. Fl. N. Zeal. 108. t. 89. f. 3); monoicum, caule procumbente subpinnatim ramoso, ramis brevibus simplicibus subcompressis, foliis patentibus cordato-ovatis acuminatis subserrulatis apice subpiliformi attenuatis nervo ultramedio, seta scabra breviuscula, capsula oblonga horizontali, operculo longirostri.

HAB. Circular Head. (*Gunn, 1694.*) Hobarton. (*J. D. H.*)

DISTRIB. New Zealand, Norfolk Island.

8. **Hypnum austrinum** (Hook. fil. et Wils. Fl. N. Zeal. 108. t. 89. f. 4); monoicum, caule repente vage ramoso, ramis suberectis incurvis subsimplicibus, foliis patentibus subsecundis cordato-ovatis acutis concavis serrulatis nervo ultramedio, perichætialibus erectis attenuatis, seta scabra, capsula ovata cernua, operculo rostrato.

HAB. Wet places, by streams? Johnny's Creek and Back River Gully. (*Oldfield, 85, 294.*)

DISTRIB. New Zealand.

In habit much like *H. ruscifolium*, Neck., but differing in the rough seta, more concave, less rigid leaves, and thinner nerve.

9. **Hypnum asperipes** (Mitten, in *Journ. Linn. Soc. ined.*); "monoicum, caule procumbente, ramis pinnatis, foliis patentibus latissime ovatis acuminatis serrulatis nervo tenui medio evanido cellulis longitudine circiter  $\frac{1}{2}$  latitudine  $\frac{1}{3}$  unc. metientibus, perichætialibus latis in acumen breve attenuatis theca in pedunculo subunciali aspero oblongo-ovalis horizontalis operculo longirostrato peristomio normali. (TAB. CLXXVI. Fig. 4.)

HAB. Cheshunt, *Archer.*

More densely branched, and with more acuminated leaves than *H. hians*, Hedw., to which in size and general appearance it is nearly allied. *Mitten, l. c.*—PLATE CLXXVI. Fig. 4; 1, leaf; 2, perichætium; 3, capsule:—*all magnified.*

b. CONFERTA.—*Seta lævi. Operculo rostrato.*

10. **Hypnum collatum** (Hook. fil. et Wils.); monoicum, caule procumbente pinuatim ramoso, ramis robustis compressis, foliis patulis late ovatis acuminulatis concavis serrulatis seminerviis angustissime lineari-areolatis, perichætialibus longius acuminatis recurvis, seta lævi, capsula cernua oblonga arcuata, operculo longirostri.—*H. confertum*, var. *majus*, *Fl. N. Zeal. p. 108.* *H. tenuifolium*, *Hedw. Sp. Musc. t. 75*; *Mitten, in Journ. Linn. Soc. ined.* (TAB. CLXXVI. Fig. 5.)





Var. *β. laxifolium*; caule elongato, ramis longioribus, foliis distantibus, seta longiore.

Var. *γ. minus*; caule erecto gracili parce ramoso, ramis erectis gracilibus vix compressis, foliis erecto-patentibus.

Var. *δ*; capsula inclinata recta fere symmetrica.

HAB. On decayed wood, etc., in damp, shady places. (Gunn.) Var. *β.* Back River Gully. (*Oldfield*, 83.) Var. *γ.* At the foot of trees: Coal River Tier, Richmond. (*Oldfield*.)

DISTRIB. New Zealand.

In general aspect much like *H. serrulatum*, Hedw., but distinguished by the pinnated disposition of the branches, and wider, concave, minutely-serrated leaves of closer texture. Var. *β* has the setæ nearly  $1\frac{1}{2}$  inch long. Var. *γ* is a small form, closely resembling *H. megapolitanum*, Bland., but the leaves are roundish-ovate, not cordate, more shortly acuminate; areolæ very narrow and elongated; alar cellules few and inconspicuous.—PLATE CLXXVI. Fig. 5; 1, part of branch and leaf; 2, leaf; 3, perichætium and capsule; 4, capsule:—*all magnified*.

11. **Hypnum aristatum** (Hook. fil. et Wils.); monoicum, caule pinnatim ramoso, ramis gracilibus attenuatis, foliis patentibus subcompressis siccitate laxè flexuosis ellipticis piliformi-acuminatis concavis serrulatis (margine haud reflexis), perichætialibus erectis acuminatis, seta lævi, capsula oblonga cernua arcuata, operculo brevirostri. (TAB. CLXXVI. Fig. 6.)

HAB. Growing with *H. collatum*. (Gunn, 48 b.) Cheshunt, Archer.

DISTRIB. New Zealand.

A smaller species, with leaves almost piliferous, dark green, and not glossy.—*Peristome*, outer reddish-brown; inner yellow, with solitary cilia. Spores small, yellow. Annulus small, adhering to the mouth of the capsule.—PLATE CLXXVI. Fig. 6; 1, part of branch and leaves; 2, leaf; 3, perichætium; 4, capsule:—*all magnified*.

c. RUTABULA.—*Seta scabra. Operculo conico.*

12. **Hypnum rutabulum** (Linn. Sp. Pl. 1590); monoicum, caule vage ramoso, foliis laxè imbricatis patulis ovato-acuminatis serrulatis nervo ultramedio siccitate striatis, seta scabra, capsula ovata cernua, operculo conico.—Hedw. *Musc. Frond. t. 12.* Brachythecium rutabulum, Br. et Schimp. *Bryol. Eur. t. 543.*

Var. 2; floribus synoicis turgidis.

HAB. On the ground: Brown's River, Johnny's Creek. Swamps on Mount Wellington, and at the Falls, New Norfolk. Back River Gully. (Gunn, 1690.) (*Oldfield*, 82, 96, 145, 326 b.) On trees: Long Hill, Cheshunt, Archer. Var. 2. Back River Gully. (*Oldfield*, 84.)

DISTRIB. Europe, America, Antarctic Islands.

13. **Hypnum campestre** (*Brachythecium*, Bruch, *Bryol. Europ. 13. t. 11*); "monoicum, procerum, laxè cæspitosum, caule longe prostrato vel ascendente, valde ramoso, ramis flexuoso-ascendentibus vage vel subpinnatim ramulosis dense foliosis, foliis erecto-patentibus, longe ovato-lanceolatis brevius longiusve subulato-acuminatis, tenuicostatis, pluries irregulariter sulcatis, margine serratis, sericeo-nitidis, lutescentibus, perichætialibus longe subulatis, subula recurva, capsula in pedicello superne obsolete scabro incurvo-cernua, ovali- et oblongo-cylindrica, curvula, operculo conico."—Mitten, *in lit.*

HAB. Woolmers, near Longford, Archer.

DISTRIB. Europe, Asia, North America.

14. **Hypnum paradoxum** (Hook. fil. et Wils. Fl. Antarct. ii. p. 419. t. 155. f. 2); caule repente subpinnato, foliis falcate-secundis ovato-lanceolatis acuminatis striatis serrulatis ruptinerviis, seta scabra, theca cernua obovato-oblonga.—Mitten, *in Journ. Linn. Soc. ined.*



HAB. Cheshunt, *Archer*.

DISTRIB. Hermit Island, South-west Australia.

§ 4. *Foliis squarrosis*.

a. STELLATA.—*Capsula lævi*.

15. **Hypnum decussatum** (Hook. fil. et Wils. Fl. N. Zeal. p. 110. t. 90. f. 2); dioicum, caule procumbente pinnatim ramoso, ramis simplicibus, foliis patulis squarroso-recurvis ovatis longiuscule acuminatis subintegris nervo subcontinuo.

HAB. Bog near the Derwent, New Norfolk. (*Oldfield*, 91.)

DISTRIB. New Zealand.

A larger Moss than *H. glaucocarpon*, Schwægr. Suppl. t. 228.—*Leaves* reddish or tawny, nerved almost to the apex, where they are more tapering. *Fruit* not yet observed.

b. *Capsula sulcata*.—PTYCHOMNION, Hook. fil. et Wils.

16. **Hypnum aciculare** (Labill., Bridel, Musc. Recent. ii. 2. 158. t. 5. f. 2); dioicum, caule vage ramoso, ramis simplicibus elongatis crassis, foliis squarroso-patulis ovatis longius acuminatis apice incisoserratis enerviis, capsula subcylindrica arcuata sulcata, operculo longirostri.—*Schwægr. Suppl. t. 92*. Stereodon (*Achyrophylum*) acicularis, *Mitten, in Journ. Linn. Soc. ined.*

HAB. On the earth, in woods, *J. D. II.*, *Lyall*. Back River Creek. (*Gunn*, 38.) (*Oldfield*, 23.) Cheshunt, *Archer*.

DISTRIB. Australia, New Zealand, Fuegia, Antarctic Islands, South America, Society Islands.

§ 5. COCHLEARIFOLIA.—*Foliis valde concavis, obtusis, imbricatis, subenerviis*.

17. **Hypnum cochlearifolium** (Schwægr. Suppl. t. 88); dioicum, caule elongato vage ramoso, ramis crassis simplicibus erectis, foliis patentibus imbricatis subrotundis obtusis hemisphærico-concavis integerrimis enerviis, perichætalibus vaginantibus, capsula ovata subcernua, operculo conico.—*Hypnum flexile*, *Hook. Musc. Exot. t. 10 (non Swartz, Fl. Ind. Occ.)*. Isothecium flexile, *Bridel, Bryol. Univ. (ex parte)*. Stereodon (*Isothecium*) cochlearifolius, *Mitten, in Journ. Linn. Soc. ined.*

HAB. Hobarton, *J. D. II.* On rocks: Elliott Rivulet, Meander River, *Archer*.

DISTRIB. New Zealand, Australia, Lord Auckland's Islands, Campbell's Island.

18. **Hypnum clandestinum** (Hook. fil. et Wils. Fl. N. Zeal. 111. t. 90. f. 3); quasi monoicum, fl. masc. nidulante, caule repente, surculis erectis vage ramosis subincurvis rigidulis, foliis patulis imbricatis subrotundis obtusissimis inflato-concavis subenerviis, perichætalibus subsquarrosis, seta breviuscula, capsula ovata cernua, operculo conico.

HAB. Banks of Huon River, on moist trunks of trees. Back River Gully. (*Gunn*, 41.) (*Oldfield*, 73, 78.) Near the summit of Mount Wellington, *J. D. II.*

DISTRIB. New Zealand.

19. **Hypnum divulsum** (Hook. fil. et Wils. Fl. N. Zeal. 111. t. 90. f. 4); dioicum, surculis erectis rigidis vage ramosis, ramis subsimplicibus subincurvis, foliis patulis laxè imbricatis obovato-subrotundis concavis obtusiusculis minute serrulatis seminerviis areolis punctiformibus, perichætalibus squarrosis, capsula ovata cernua, operculo conico acuminato.

HAB. Shady places: Gully, foot of Grass-tree Hill. Johnny's Creek and Brown's River. (*Oldfield*.) Back River. (*Gunn*, 1686, 41.)

DISTRIB. New Zealand.



Smaller than the preceding.

20. **Hypnum chlamydophyllum** (Hook. fil. et Wils. Fl. Antaret. t. 61. f. 1); monoicum, caule prostrato vage ramoso, ramis simplicibus elongatis cuspidatis erectis, foliis patentibus imbricatis quadrato-rotundatis basi truncatis auriculatis concavis integerrimis auriculis pellucidis, nervo evanido brevi, seta elongata, capsula ovato-oblonga cernua, operculo conico.—*Stereodon auriculatus* (Hypnum), *Mont.*; *Mitten*, in *Journ. Linn. Soc. ined.*

HAB. St. Patrick's River. (*Gunn*, 1594, 1589.) On moist banks: Mount Wellington. (*J. D. II.*) Back River Gully. (*Oldfield*, 71, 75, 76, 257.) On logs: Western Creek, near Cheshunt, *Archer*. Near the Derwent, *Mossman*.

DISTRIB. New Zealand, Cape Horn, Campbell's Island.

§ 6. CUPRESSIFORMIA.—*Foliis secundis, enerviis.*

21. **Hypnum cupressiforme** (Linn. Sp. Pl. 1592); dioicum, caule vage pinnatimque ramoso, ramis incurvis, foliis falcato-secundis ovato-lanceolatis acuminatis concavis enerviis cellulis alaribus opacis quadratis, capsula subcylindrica subcernua, operculo conico cuspidato.—*Hedw. Musc. Frond. t. 33.*

Var. *β. minus*; ramis gracilibus, foliis angustioribus.—*Stereodon cupressiformis*, var. *Mossmani*. *Hypnum Mossmanianum*, *C. Mueller, Bot. Zeit.* 1851, p. 565; *Mitten*, in *Journ. Linn. Soc. ined.*

HAB. Moist rocks: North-west Bay. (*Gunn*.) Mount Wellington, *J. D. II.* Back River Gully. (*Oldfield*, 81, 89, 102, 313.) Fern-tree Valley, Mount Wellington, *Mossman*.

DISTRIB. All parts of the world.

22. **Hypnum patale** (Hook. fil. et Wils. Fl. N. Zeal. 112. t. 90. f. 6); dioicum, caule procumbente pectinatim ramoso, ramis superne planiusculis confertis patulis, foliis lateralibus distiche patulis omnibus falcato-secundis ovato-lanceolatis acuminatis apice subserrulatis enerviis, perichæcialibus setaceo-acuminatis erectis serratis, seta elongata, capsula ovato-oblonga horizontali, operculo conico apiculato.—*Stereodon chrysogaster* (Hypnum), *C. Mueller; Mitten*, in *Journ. Linn. Soc. ined.*

HAB. On trees. (*Gunn*.) (*Oldfield*.) Cheshunt, *Archer*.

DISTRIB. New Zealand.

Allied to *H. cupressiforme*.—*Leaves* more spreading, pale-green, glossy, yellowish at the base.

23. **Hypnum leptorrhynchum** (Bridel, Bryol. Univ. ii. 621, ex parte); monoicum, caule repente subpinnatim ramoso, foliis falcato-secundis lineari-lanceolatis acuminatis siccitate torquescentibus apice serrulatis enerviis margine subreflexis, seta gracili lævi, capsula oblonga nutante, operculo longirostri.—*Schwagr. Suppl. t. 93.* *Stereodon cyparoides*, *Bridel; Mitten*, in *Journ. Linn. Soc. ined.*

HAB. Hobarton, etc., on trees, *Gunn, Stuart, J. D. II.* Johnny's Creek. (*Oldfield*, 98.) On logs, frequent: Cheshunt, *Archer*.

DISTRIB. New Zealand, Australia, Antarctic Islands, Isle of Bourbon, South America, South Africa.

24. **Hypnum cyparoides** (Bridel, Musc. Recent. ii. 2. 138. t. 3. f. 4); *H. leptorrhyncho* simillimum, foliis minus falcatis latioribus subdistiche lateraliter patentibus brevioribus, perichæcialibus angustioribus sensim acuminatis, seta gracillima breviori apice arcuata, capsula ovali pendula minuta sub ore constricta leptoderma.

HAB. South Port, with the preceding. (*Stuart*.)

DISTRIB. Australia.

25. **Hypnum cerviculatum** (Hook. fil. et Wils. Fl. N. Zeal. p. 113. t. 91. f. 2); dioicum, caule repente subpinnatim ramoso, foliis falcato-secundis lanceolatis acuminatis apice attenuatis serratis margine



vix reflexis enerviis, perichæcialibus ovato-lanceolatis apiculatis serratis erectis, seta scabriuscula crassa brevior, capsula oblonga horizontali basi strumulosa exannulata, operculo longirostri.—*H. leptorrhynchum*, var.  $\beta$ , *Hook. fil. et Wils. Fl. Antarct. pt. 1. p. 141.* *Stereodon cerviculatus*, *Mitten, in Journ. Linn. Soc. ined.*

HAB. On trees: Hobarton. (*Gunn, 48.*) (*J. D. II.*) On logs: Cheshunt, *Archer.*

DISTRIB. New Zealand, Lord Auckland's Islands.

26. ***Hypnum limatum*** (*Hook. fil. et Wils. Fl. Antarct. ii. p. 545*); dioicum, caule subpinnatim ramoso, ramis incurvis simplicibus, foliis secundis falcatisve ovato-lanceolatis subpiliferis subintegris enerviis, perichæcialibus elongatis recurvis subpiliferis subserrulatis, capsula cylindrica suberecta, operculo conico-apiculato brevi.—*Hypnum Terræ-Novæ, var.  $\beta$ . australe, Hook. fil. et Wils. Fl. Antarct. i. p. 142. t. 61. f. 4.*

Var. foliis minoribus falcato-secundis vix piliferis, perichæcialibus angustioribus, seta longiori, capsula arcuata.

HAB. Damp gullies: Brown's River. (*Oldfield, 304.*) (*Iyall.*) Cheshunt, *Archer.*

DISTRIB. Australia, Lord Auckland's Islands, Campbell's Island.

27. ***Hypnum tenuirostre*** (*Hook. Musc. Exot. t. 111*); monoicum, caule repente divisionibus subpinnatim ramosis, ramis elongatis erectis, foliis falcato-secundis confertis ovato-lanceolatis acuminatis concavis subintegris enerviis, capsula ovato-oblonga cernua, operculo longirostri.

HAB. St. Patrick's River. (*Gunn, 1600.*) (*Oldfield.*)

DISTRIB. New Zealand.

28. ***Hypnum homomallum*** (*C. Mueller, Musc. Syn. ii. 336*); dioicum, foliis erecto-patentibus secundis latiuscule ovato-acuminatis cochleariformi-concavis integerrimis enerviis margine reflexis cellulis alaribus quadratis, perichæcialibus angustioribus strictis, seta breviuscula lævi, capsula subcernua oblonga curvula, operculo longirostri.—*Leskea homomalla, Hampe, Ic. Musc. 1844, t. 6.* *Hypnum Drummondii, Taylor, Lond. Journ. Bot. 1846, p. 63.*

HAB. On rocks, not uncommon. (*Gunn, 36, 1691.*) (*Oldfield, 64.*) Rocks facing the sea at Eaglehawk Neck, *J. D. II.* South Port, *Stuart.*

DISTRIB. Australia, New Zealand?

Leaves purplish or golden-brown, glossy.

29. ***Hypnum Jolliffii*** (*Mitten, in Journ. Linn. Soc. ined.*); "monoicum, *H. Loense* habitu statu-que simile, ramis apicibus cuspidatis, foliis patentibus laxè imbricatis ovali-ellipticis acuminatis concavis obsolete binerviis enerviisve integerrimis vel apice subserrulatis cellulis angustis elongatis alaribus utrinque tribus majoribus hyalinis perichæcialibus interioribus tribus erecto-patentibus caulinis conformibus, theca in pedunculo gracili parva ovali inclinata horizontalive, operculo rostro æquilongo, peristomio dentibus flavis processibus solidis ciliis in uno brevior coalitis in membranam ad  $\frac{2}{3}$  exsertis, annulo simplici."—*Stereodon Jolliffii, Mitten, in Journ. Linn. Soc. (TAB. CLXXVII. Fig. 1.)*

HAB. On stones and the earth: Western Creek, Cheshunt, *Archer.*

DISTRIB. New Zealand.

Very much like *H. Loense*, *Hook.*, but with a leaf of a different form. *Mitten, l. c.*—PLATE CLXXVII. Fig. 1; 1 and 2, leaves; 3, perichæcium; 4, capsule; 5, peristome:—*all magnified.*

30. ***Hypnum contiguum*** (*Hook. fil. et Wils.*); monoicum, caule subpinnatim ramoso, ramis apice subcuspidatis, foliis erecto-patentibus sursum subsecundis strictis laxiusculis lanceolatis piliformi-acuminatis





integerrimis nerviis concaviusculis basi flavidis cellulis alaribus vesiculæformibus, perichætalibus longioribus erectis, seta breviuscula lævi, capsula pendula elliptico-oblonga, operculo longirostri. (TAB. CLXXVII. Fig. 2.)

HAB. Trunks of trees: Mount Wellington. (Gunn, 51 b.) (Oldfield.) On logs and upon the ground, Cheshunt, Archer.

Allied to *H. subsimplex*, C. Mueller, Musc. Syn. ii. 283, from Trinidad, and of the same pale glossy hue.—Leaves less crowded, turned upwards. Capsule larger, pendulous. Male flower smaller.—From *H. leptorrhynchum* it differs in the wider and shorter leaves, which are not at all falcate, and are somewhat scariosæ.—PLATE CLXXVII. Fig. 2; 1, portion of branch, with perichæcium and capsule; 2, capsule and operculum:—all magnified.

§ 7. *Foliis distiche imbricatis vel compressis, subnerviis.*

a. *Foliis piliferis.*

31. **Hypnum extenuatum** (Bridel, Bryol. Univ. ii. 484); dioicum, caule elongato rigidulo procumbente inordinate bipinnatimque ramoso, ramis nunc simplicibus nunc apice fasciculatis flagelliferis fragilibus, foliis patentibus ovato-lanceolatis piliformi-acuminatis nerviis, rameis superioribus appressis muticis angustioribus, perichætalibus erectis apice capillaceis integerrimis, seta longiuscula lævi, capsula ovata inclinata.

HAB. Barren specimens only, growing amongst *Dicranum pungens*. (Lawrence.) (Gunn.)

DISTRIB. Australia (solitary specimen with capsule, found amongst other species). New Zealand, J. D. H. (barren specimens only.)

After much investigation we conclude (C. Mueller contr.) that *H. extenuatum*, of Bridel, is distinct from our *H. crinitum*; or, if not, that Bridel's description is so erroneous as to render identification impossible. The Moss here assumed to be Bridel's species is larger than *H. contiguum*.—Stem creeping, 3 inches long or more, with short, erect branches, often fasciculate with numerous flagelliform branchlets. Leaves yellowish, somewhat glossy, more decidedly piliferous, but less so than in *H. crinitum*. Seta  $\frac{1}{2}$  inch long, red.

32. **Hypnum crinitum** (Hook. fil. et Wils. Fl. N. Zeal. 114. t. 91. f. 4); dioicum, caule procumbente elongato inordinate pinnatimque ramoso, ramis remotis patentibus planiusculis subpinnatis acutis, foliis subcompressis erecto-patentibus concavis e basi oblongo-ovata obtusa longe piliferis subserrulatis nerviis, perichætalibus erectis piliferis, seta elongata lævi, capsula ovata cernua, operculo conico.—H. filiferum, Taylor, MSS.

HAB. On trunks of live trees, near springs, etc: Mount Wellington, Lyall. Yorktown and St. Patrick's River. (Gunn, 1589, 1669.) Back River Gully and Johnny's Creek. (Oldfield, 68, 99, 158.)

DISTRIB. New Zealand.

33. **Hypnum politum** (Hook. fil. et Wils. Fl. Antart. 110. t. 154. f. 2; Lond. Journ. Bot. 1844, 553); dioicum, vage ramosum, ramis elongatis procumbentibus compressis, foliis distiche imbricatis lateribus patentibus cæteris appressis omnibus oblongis compresso-carinatis subpiliferis integerrimis nerviis, seta longiuscula lævi, capsula oblonga horizontali, operculo conico-rostellato.—Phyllogonium callichroum, Montagne, in Ann. Nat. Sc. Cent. v. 2 (non Bridel, Bryol. Univ. ii. 673).

HAB. Damp ground, Johnny's Creek. (Oldfield, 94.) On rocks, with *Bartramia Halleriana*. (Gunn, 1631.) Mount Wellington, Mossman.

DISTRIB. New Zealand, Kerguelen's Land, Cape Horn, Chili.

Branches 1 inch long. Leaves bright-green, glossy, crowded, much compressed. Seta 1 inch. Operculum above half the length of the capsule. Calyptra dimidiate, coriaceous.



b. *Foliis muticis.*

34. **Hypnum denticulatum** (Linn. Sp. Pl. p. 1588); monoicum, caule prostrato parce ramoso, ramis latiuscule complanatis longiusculis subattenuatis, foliis laxe confertis e basi caviuscula asymmetrica late ovatis acuminulatis integerrimis margine inferne recurvis basi subbinerviis, capsula subcylindrica inclinata, operculo conico acuto.—*Hedw. Musc. Frond. t. 31.* Stereodon Donianus, *Mitten, in Journ. Linn. Soc. ined.*

HAB. Johnny's Creek. (*Oldfield, 140.*) (Scanty and imperfect specimen, growing amongst *Leptotheca Gaudichaudii.*) Cheshunt, *Archer.*

DISTRIB. Hermit Island, Cape Horn, Europe, North America.

## Tribe XXIV. RHIZOGONIACEÆ.

Gen. LVI. RHIZOGONIUM, *Bridel.*

*Peristomium Hypni.* Calyptra subulata, dimidiata. Capsula inclinata, longipedunculata. Operculum plerumque rostratum.—Surguli subsimplices, erecti, subcompressi, cæspitiosi. Fructus basilaris. Florescentia dioica. Folia rigida, serrata, vel integerrima.

1. **Rhizogonium distichum** (Bridel, Bryol. Univ. ii. 665); dioicum, foliis distichis ovato-oblongis apice grosse dentatis nervo crasso sub apicem evanido, capsula oblonga horizontali, operculo conico-rostellato.—R. Muelleri, *Hampe, in Plantæ Muellerianæ in Linnæa! (ex Mitten).* Hypnum distichum, *Schwægr. Suppl. t. 87.*

HAB. On rocks, *Gunn.* On stones: Leith's Creek, Cheshunt, *Archer.* Mount Wellington, *Mossman.*

DISTRIB. New Zealand.

2. **Rhizogonium Novæ-Hollandiæ** (Bridel, Bryol. Univ. ii. 664); dioicum, foliis distichis submarginatis oblongo-ovatis denticulatis nervo valido excurrente breviter cuspidatis, capsula oblonga horizontali, operculo rostrato.—*Leskea Novæ-Hollandiæ, Schwægr. Suppl. t. 83.*

Var. foliis secundis. (*Gunn.*)

HAB. On rotten trunks of trees, and near springs: Mount Wellington. Back of Hobarton, on banks and dead wood. East Coast, on trap rocks. (*Oldfield, 95.*) (*J. D. II., 1346.*) On dead trees: Western Creek and West-end Rivulet, Cheshunt, *Archer.* Mount Wellington, *Mossman.*

DISTRIB. New Zealand, Australia, Lord Auckland's Islands.

More elegant than the last.—*Leaves* yellowish-green, pellucid, scariose, obscurely margined below. *Areole* larger, guttulate. *Capsule* pale-red, purplish at the mouth. *Seta* reddish, 1 inch long. *Operculum* nearly as long as the capsule. *Inner peristome* with short cilia. *Annulus* large.

3. **Rhizogonium bifarium** (Schimper, Bot. Zeit. 1844, p. 125); dioicum, surculo superne ramoso, foliis distichis distantibus patentibus ovato-lanceolatis concaviusculis submarginatis solidinerviis duplici serie spinuloso-serratis, capsula ovata horizontali, operculo conico-acuminato substrellato.—Hypnum bifarium, *Hook. Musc. Evol. t. 57.* Isothecium bifarium, *Bridel, Bryol. Univ. ii. 356.*

HAB. On stones, in wet places. Gullies: Brown's River, Back River Gully. (*Oldfield, 289, 326.*)

DISTRIB. New Zealand.

*Surguli* slender,  $\frac{1}{2}$  inch long, bearing fruit about midway, not at the base. *Branches* few, slender, curved to one side. *Rachis* zigzag. *Leaves* dull-green. *Seta*  $\frac{1}{2}$  inch, curved at the top. *Capsule* small, roundish.



4. **Rhizogonium spiniforme** (Hedw. Musc. Frond. t. 25); monoicum, foliis laxè imbricatis patentibus rigidis lineari-subulatis marginatis excurrentinerviis duplici serie spinoso-serratis, seta elongata basilari, capsula oblonga arcuata horizontali, operculo rostrato.—Hypnum spiniforme, *Linn. Sp. Pl.* 1587; *Bridel, Bryol. Univ.* ii. 557.

HAB. Hobarton (barren specimens only), on dead wood, *J. D. II.* Cheshunt, *Archer.* Mount Wellington, *Mossman.*

DISTRIB. New Zealand, Norfolk Island, Antarctic Islands, South America, West Indies, Florida, Mexico, Sandwich and Pacific Islands, East Indies, Philippine Islands, Java, Ceylon, and South Africa.

5. **Rhizogonium mnioides** (*Hypnum*, *Bridel, Bryol. Univ.* ii. 559); dioicum, foliis erecto-patentibus basi decurrentibus lanceolato-subulatis anguste marginatis duplici serie dentatis solidinerviis siccitate tortilibus, seta elongata subbasilari, capsula ovata subcernua, operculo rostrato.—Hypnum mnioides, *Hook. Musc. Exot. t.* 77. H. subbasilare, *Schwagr. Suppl. t.* 256.

Var.  $\beta$ . *contortum*; surculo graciliori, foliis brevioribus siccitate contortis margine involutis, perichætalibus longius lineari-acuminatis serratis.—R. *Hookeri*, *C. Mueller, et R. Mossmanianum ejusd., Bot. Zeit.* 1851, p. 547; *conf. Mitten, in Journ. Linn. Soc.*

Var.  $\gamma$ . *lutescens*; surculo humiliori, foliis confertis lanceolatis (nec basi dilatatis) siccitate parum crispatis, areolis majoribus.

HAB. Var.  $\beta$ . On stones and decayed wood, in damp woods: Mount Wellington, *Mossman.* Brown's River, Back River Gully. (*J. D. II.*) (*Oldfield*, 114, 326.) Var.  $\gamma$ . Western Mountains. (*Gunn*, 1612.)

DISTRIB. New Zealand, Antarctic Islands, Fuegia, South America.

Probably *Mnium Hookeri* (*C. Mueller, Musc. Syn.* ii. 555) belongs to our var.  $\beta$ .

6. **Rhizogonium subbasilare** (*Schimper, Bot. Zeit.* 1844, p. 125); monoicum, surculis erectis, foliis erecto-patentibus subsecundis (haud compressis) laxis lineari-lanceolatis pellucidis evanidinerviis laxè reticulatis margine (raro duplici serie) spinuloso-dentatis, seta elongata subbasilari, capsula subcylindrica horizontali, operculo conico.—Hypnum subbasilare, *Hook. Musc. Exot. t.* 10; *Fl. Antarct.* ii. 417. H. mnioides, *Schwagr. Suppl. t.* 257.

HAB. On dead wood, not uncommon. (*Gunn*, 44, 45 b.) Cheshunt, *Archer.*

DISTRIB. Cape Horn, Hermite Island.

#### Gen. LVII. HYMENODON, *Hook. fil. et Wils.*

*Peristomium simplex*; dentes 16, membranacei, æquidistantes, lineari-subulati, planiusculi, fugaces, apicibus cohærentes, membrana basilari angusta connexi. *Calyptra* dimidiata. *Capsula* suberecta. *Operculum* rostratum.—Florescentia dioica. Habitus *Rhizogonii*. Vita arborea. Folia distiche imbricata, elliptica, plana, pilifera, papillosa; areolis subrotundis, minutis.

1. **Hymenodon pilifer** (*Hook. fil. et Wils. Fl. N. Zeal.* 117. t. 92. f. 3); dioicus, surculis simplicibus, foliis laxè disticheque imbricatis patentibus elliptico-oblongis planis longe piliferis evanidinerviis papillosis margine crenulatis, perichætalibus lanceolato-acuminatis erectis, seta basilari elongata gracili, capsula inclinata ovali ore coarctata.—Hypnum Mougeotianum, *D'Urville?*

HAB. On trunks of Tree-ferns: Banks of Huon River, *J. D. II.* Cheshunt, *Archer.*

DISTRIB. New Zealand.



## Tribe XXV. HYOPTERYGLE.

Gen. LVIII. HYOPTERYGIUM, *Bridel*.

*Peristomium Hypni*. Calyptra conico-subulata, coriacea, plerumque latere fissa. Capsula æqualis, longe pedunculata, cernua vel pendula. Operculum e basi convexa rostratum.—Caulis repens. Surculi dendroidei, pinnatim ramosi, complanati. Folia tristicha, lateralia pterygoidea, obliqua, verticalia, dorsalia (tegmina dicta) minora aliterque conformata, subappressa. Fructificatio lateralis, axillaris.

1. **Hypopterygium Smithianum** (Hook. fil. et Wils. Fl. N. Zeal. p. 118); dioicum, surculo bipinnatim ramoso inferne nudo, foliis distichis ovato-subrotundis acuminulatis concaviusculis deflexis marginatis evanidinerviis apice denticulatis, tegminibus subrotundis acuminulatis solidinerviis, perichætialibus lanceolato-acuminatis, capsula pendula, operculo rostrato.—II. Novæ-Zelandiæ, C. Mueller, Bot. Zeit. 1851, p. 562; Mitten, in Journ. Linn. Soc. ined. Hookeria rotulata, Smith, in Linn. Trans. ix. 279 (non Hedw. Sp. Musc.).

Var. foliis siccitate magis crispatis, tegminibus oblongis, seta graciliori apice evidentius arcuata. (Lawrence.)

HAB. Hobarton, etc. (Gunn, 49, 65.) Kangaroo Bottom, J. D. H. Gullies round Brown's River. (Oldfield, 60.) Top of Grass-tree Hill, South Port, Stuart. On living trees: Western Creek, and other rivulets; Cheshunt, Archer. (Lyll, 95.)

DISTRIB. New Zealand, Norfolk Island.

Gen. LIX. LOPIDIUM, *Hook. fil. et Wils.*

*Peristomium duplex Leskeæ*; internum, ciliis nullis. Calyptra conico-subulata. Capsula æqualis, inclinata vel cernua, annulata, brevipedunculata. Operculum rostratum.—Caulis repens. Surculi subdendroidei, pinnatim ramosi; fronde elongata, erecta; ramis haud radiatis. Folia tristicha, oblonga, lateralia obliqua. (Name from λωπίς, a scale.)

1. **Lopidium pallens** (Hook. fil. et Wils. Fl. N. Zeal. p. 119); monoicum, surculo erecto bipinnatim ramoso inferne nudo, foliis bifariis verticalibus oblongo-ovatis acuminulatis marginatis apice denticulatis siccitate crispulis subtortilibus, tegminibus cordato-acuminatis, perichætialibus brevioribus, seta scaberula longiuscula gracili, capsula horizontali annulata, operculo rostrato, peristomii dentibus crebre trabeculatis.—Leskea concinna, Schwægr. Suppl. t. 269 (non Hook.). Hypopterygium Struthopteris, Bridel; Mitten, in Journ. Linn. Soc. ined.

HAB. On trunks of Tree-ferns: Huon River. South Port, Stuart. On dead timber and trunks of trees: by the Kernandie Rivulet, South Huon. Gullies near Brown's River, Brown, Gunn, 34, 1632, J. D. H., Oldfield, etc.

DISTRIB. New Zealand, South America, Chiloe.

Essentially distinguished from *L. concinna*, Hook. Musc. Exot. t. 34, by the inflorescence, and by the rough seta.

Gen. LX. CATHAROMNION, *Hook. fil. et Wils.*

*Peristomium simplex*, internum; dentes 16, lineari-lanceolati, carinati, membrana basilari brevi connexi. Calyptra conico-mitræformis, basi lacera. Capsula suberecta, oblonga. Operculum conico-subulatum.—Caulis repens. Surculi dendroidei, superne pinnatim ramosi. Folia tristicha, subrotunda, ciliata. Florescentia dioica. (Name from καθαρός, neat.)





1. **Catharomnion ciliatum** (Hook. fil. et Wils. Fl. N. Zeal. p. 119); dioicum, surculo pinnatim ramoso inferne nudo, foliis ovato-subrotundis bifariis longe ciliatis evanidinerviis, tegminibus multo minoribus ovato-lanceolatis acuminatis ciliatis, setulis intrafoliaceis aciculiformibus, seta breviuscula crassa, capsula oblonga suberecta, operculo rostrato.—Pterigynandrum ciliatum, *Hedw. Sp. Musc. t. 17*. Hypopterygium ciliatum, *Bridel, Bryol. Univ. ii. 710*.

HAB. Tasmania, *Gunn*.

DISTRIB. New Zealand.

#### Gen. LXI. CYATHOPHORUM, P. Beauv.

*Peristomium duplex, Hypni. Calyptra mitriformis, parva. Capsula æqualis, annulata, brevissime pedunculata, pedunculo vaginula tumida cyathiformi inserto. Operculum convexo-acuminatum. Florescentia dioica; antheridia paraphysibus clavatis suffulta.—Caulis repens. Surculi erecti, subsimplices, filicoidei. Folia tristicha, lateralia verticalia, patentia, obliqua, dorsalia seu tegmina minora, subrotunda, cauli appressa. (Name from *κυαθος, a cup, φορεω, I bear*; in allusion to the vaginula.)*

1. **Cyathophorum pennatum** (Bridel, Bryol. Univ. ii. 722); dioicum, surculis erectis complanatis, foliis distichis pterygoideis ovato-oblongis obliquis serratis nervo brevi, tegminibus subrotundis apiculatis, seta brevissima curvula, capsula ovali, operculo conico-acuminato.—Hookeria pennata, *Hook. Musc. Exot. t. 163*.

Var. *β. minus*; foliis distantibus acutis.

HAB. Mount Wellington, near Hobarton. (*Gunn, 33.*) (*J. D. II.*) (*Oldfield.*) Rivulets: Cheshunt, *Archer*. Var. *β.* Rivulet near Castle Forbes Bay. (*Oldfield, 61.*)—(*v. v.*)

DISTRIB. New Zealand, Lord Auckland's Islands.

#### Tribe XXVI. RACOPILACEÆ.

#### Gen. LXII. RACOPILUM, P. Beauv.

*Peristomium duplex, Hypni. Calyptra conico-mitriformis, basi inflexa, pilosa, interdum dimidiata, fere nuda. Capsula inæqualis, curvata, cernua vel erecta, sulcata, pachyderma, annulata. Operculum rostratum.—Caulis repens, vage subpinnatim ramosus. Folia plerumque dimorpha, lateralia subdisticha, patula, intermedia minora, diversiformia, omnia excurrentinervia, pilifera, minute et opace areolata, subrotunda, subpapillosa.*

1. **Racopilum australe** (Hook. fil. et Wils. Fl. N. Zeal. p. 121. t. 92. f. 7); dioicum, caule repente tomentoso radiculoso subpinnatim ramoso, foliis lateralibus distiche patulis siccitate subcrispatis oblongo-ovatis nervo pellucido longe excurrente cuspidatis apice serrulatis, intermediis paullo minoribus surrectis ovato-acuminatis, seta crassa breviuscula, capsula oblonga cernua arcuata sulcata basi strumulosa, operculo brevirostri, calyptra pilosa basi campanulata.—R. strumiferum, *C. Mueller, Bot. Zeit. 1851, p. 563; Milten, in Journ. Linn. Soc. ined.*

HAB. Johnny's Creek. (*Oldfield, 93, 147.*) (Specimen imperfect.) Cheshunt, *Archer*.

DISTRIB. New Zealand.

2. **Racopilum cristatum** (Hook. fil. et Wils. Fl. N. Zeal. p. 121. t. 92. f. 5); monoicum?, caule repente, foliis lateralibus distiche patulis siccitate conniventibus ovali-oblongis obtusiusculis apice serrulatis nervo concolore excurrente cuspidatis, intermediis cordato-acuminatis duplo minoribus, seta longiuscula



gracili, capsula arcuata sulcata, operculo brevirostri, calyptra subulata dimidiata parce pilosa, peristomii dentibus dorso scabris, fl. masc. nidulantibus.—R. tomentosum, C. Mueller, *Bot. Zeit.* 1851, p. 563? *fid. Mitten.*

HAB. St. Patrick's River. (Gunn, 1654.) Huon River, on the ground. (Oldfield, 53.) Kangaroo Bottom, J. D. H. Kermantie Rivulet, South Huon, on logs, stumps, etc. Woodburn, near Richmond, damp ground. Cheshunt, Archer.

DISTRIB. New Zealand.

Tribe XXVII. HOOKERIAEÆ.

Gen. LXIII. HOOKERIA, Smith.

*Peristomium duplex*; *externum*, dentes 16, lanceolato-subulati, acuminati, incurvi, intus trabeculati, dorso costis prominentibus plus minus distantibus biliratis; *internum*, membrana plicata in processus 16 carinatos, raro ciliis interpositis, fissa. *Calyptra* mitriformis. *Capsula* cernua, ovata, longius pedunculata.—*Caulis repens, vel prostratus, vage ramosus*. Rami *plerumque compressi*. Folia *imbricata vel compressa, lateralia obliquata, areolis majusculis, rhomboideis vel hexagonis*.

§ 1. SAULOMA.—*Calyptra nuda, basi inflexa, integerrima, demum lacera, nec fimbriata*. *Peristomii externi dentes dorso remotius lirati, interni processus carinati, ciliis nullis*. Folia *imbricata, subsecunda (haud compressa), immarginata, laxè rhomboideo-areolata*.

1. *Hookeria tenella* (Hook. fil. et Wils. Fl. N. Zeal. p. 122. t. 92. f. 8); dioica, caule humili vage ramoso, foliis confertis imbricatis suberectis secundis oblongo-ovatis acutiusculis margine reflexis enerviis laxè reticulatis pellucidis siccitate plicato-striatis, capsula subcernua ovata parva, operculo rostrato, calyptra nuda mitriformi.

HAB. St. Patrick's River. (Gunn.) Dead wood, dark shady places by the Kermantie Rivulet, South Huon. (Oldfield, 97.) Near springs: Mount Wellington. (J. D. H.) On logs: Cheshunt, and on rocks, Jackey's Plain Creek, near Cheshunt, Archer.

DISTRIB. New Zealand.

§ 2. MNIADELPHUS, C. Mueller.—*Calyptra conico-mitriformis, basi fimbriata*. *Peristomii interni cilia nulla*. Folia *plerumque marginata, uninervia, nervo evanido*.

\* *Foliis marginalis*.

2. *Hookeria apiculata* (Hook. fil. et Wils. Fl. Antarct. t. 155. f. 6); dioica, foliis subrotundo-spathulatis apiculatis marginatis enerviis, seta scabriuscula, capsula cernua, calyptra pilosa basi fimbriata.

HAB. Circular Head. (Gunn, 1689.)

DISTRIB. New Zealand, Fuegia.

3. *Hookeria amblyophylla* (Hook. fil. et Wils. Fl. N. Zeal. p. 123. t. 93. f. 3); dioica, ramis tumidiusculis compressis, foliis confertis distiche imbricatis erecto-patentibus siccitate appressis obovatis obtusissimis marginatis integerrimis evanidinerviis, margine recurvis, perichæcialibus obtusis, calyptra fimbriata.

HAB. Tasmania. (Gunn, 1612 b.)

DISTRIB. New Zealand.

4. *Hookeria sinuosa* (Hook. fil. et Wils.); dioica, ramis compressis, foliis obovatis obtusis marginatis evanidinerviis margine planis siccitate undulato-crispatis. (TAB. CLXXVII. Fig. 3.)



HAB. Arthur's Lakes. (Gunn, 1852.) Hobarton. (Oldfield.) (Specimens few and imperfect.)

DISTRIB. New Zealand. (Dr. Sinclair.)

Closely allied to *H. amblyophylla*.—Leaves yellowish, much crisped and undulated when dry, more crowded, of firmer texture; areolæ smaller, except at the base, near the nerve, where they are larger, lax, and pellucid; cartilaginous border wider. Perichæcial leaves small, obtuse. Seta 1 inch, smooth, glossy, red, and strong. Calyptra densely fringed at the base, roughish at the apex.—PLATE CLXXVII. Fig. 3; 1, branch and leaf; 2, leaf; 3, male inflorescence:—all magnified.

5. *Hookeria pulchella* (Hook. fil. et Wils. Fl. Antarct. part 1. t. 62. f. 1); dioica, ramis subflaccidis compressiusculis, foliis confertis distiche imbricatis undulatis obovatis obtusis mucronulatis marginatis integerrimis seminerviis, perichæcialibus obtusis, capsula inclinata apophysata, operculo rostrato, calyptra fimbriata apice glabra.

HAB. With *H. amblyophylla* and *Bartramia Halleriana*. (Gunn, 18.) (A few fragments only.) On rocks: rivulet near Cumming's Head, Western Mountains, Archer.

DISTRIB. New Zealand, Lord Auckland's Islands.

6. *Hookeria crispula* (Hook. fil. et Wils. Fl. N. Zeal. p. 122. t. 93. f. 2); dioica, ramis subcompressis, foliis laxè disticheque patentibus siccitate crispato-undulatis obovatis apiculatis marginatis integerrimis seminerviis opacis (areolis minimis subrotundis) inferne pellucide laxius areolatis, perichæcialibus ovato-acuminatis, seta gracili, capsula operculo calyptraque ut in *H. rotundifolia*.—Mniadelphus crispulus, Mitten, in Journ. Linn. Soc. ined.

HAB. Leith's Creek, Cheshunt, Archer.

DISTRIB. New Zealand.

\*\* *Foliis immarginatis.*

7. *Hookeria microcarpa* (Hypnum, Hedw. Sp. Musc. t. 59); dioica, caule vage ramoso, ramis complanatis, foliis distiche imbricatis obovatis obtusis integerrimis immarginatis evanidinerviis basi medio laxè pellucido-areolatis, perichæcialibus minutis ovato-lanceolatis, seta breviuscula, capsula parva cernua vel erecta ovata, operculo rostellato, calyptra basi fimbriata.—Pterigophyllum microcarpon, Brid. Bryol. Univ. ii. 342.

HAB. Grass-tree Hill, in wet places, seldom in fruit. (Gunn.) (Oldfield, 327, 287.) Ovens Creek, and other rivulets, Cheshunt, Archer.

DISTRIB. New Zealand.

§ 3. PTERIGOPHYLLUM, Bridel.—Calyptra basi haud fimbriata, plus minus laciniata. Peristomii externi dentes remoti lirati. Folia complanata, immarginata, laxè areolata, obtusa; nervo bifurco, medio evanido.

8. *Hookeria nigella* (Hook. fil. et Wils. Fl. N. Zeal. p. 124. t. 93. f. 6); dioica, caule humil' erecto-incurvo rigidulo subramoso, foliis remotiusculis complanatis lateralibus spathulatis basi angustatis dentatis seminerviis intermediis obovatis dentatis, perichæcialibus rotundo-ovatis concavis, capsula subrotundo-ovata pendula, calyptra nuda.

HAB. Hobarton. (J. D. II.) South Port. (Stuart.) Back River Gully. (Oldfield, 31.) On rocks: in rivulets, Cheshunt, Archer.

DISTRIB. New Zealand.

Leaves lurid, shrinking when dry. Seta 1 inch long. Capsule subpyriform, with a rostrate operculum of nearly the same length. Calyptra subconical. Teeth of the peristome with two rather distant red dorsal ridges.

9. *Hookeria (Pterigophyllum) obscurum* (Mitten); caule bi-tripollicari latitudine cum foliis



fere trilineari parce ramoso, foliis distichaceo-compressis, lateralibus patentibus late elliptico-spathulatis angulo apicali obtuso basi angustatis intermediis patentibus dimidio brevioribus subtrapezoideis obtusis, iis cauli parallelis mediis dorsalibus et ventralibus erectis appressis late obovatis apice rotundatis, omnibus, foliorum, nervo ad medium brevi-furcato evanido, marginibus superioribus crenulato-serratis, cellulis partis superioris circiter  $\frac{1}{8}$  unc. diametro metientibus."—Mitten, in *Journ. Linn. Soc. ined.* (TAB. CLXXVII. Fig. 4.)

HAB. Cheshunt, Archer.

Whole plant obscure, blackish-green. Allied to *P. denticulatum* and *P. nigellum*, but with its lateral leaves very much narrowed towards the base, and these, as well as the intermediated and medial, of a different form. The species of this genus, from the neglect in their descriptions of the very different forms of the leaves in the several series, are hardly intelligible. Mitten, *l. c.*—PLATE CLXXVII. Fig. 4; 1, portion of branch and leaves; 2, 3, and 4, leaves:—all magnified.

#### Gen. LXIV. DALTONIA, Hook. et Tayl.

*Peristomium duplex*, *Neckeroideum*; *externum*, dentes sedecim, angusti, subulati, trabeculati, humiditate reflexi; *internum*, cilia totidem similia, cum dentibus alternantia, membrana basilari fere carentia. *Capsula erecta*. *Operculum* conico-subulatum. *Calyptra* mitriformis, basi eleganter fimbriata. *Florescentia* monoica vel synoica.

1. *Daltonia pusilla* (Hook. fil. et Wils.); monoica, caule humili decumbente subsimplici, foliis remotiusculis patentibus plus minus secundis siccitate laxis subcrispis anguste lanceolatis acuminatis planiusculis inferne carinatis integerrimis marginatis evanidinerviis, seta brevi gracili apice scabriuscula, capsula inclinata elliptica basi attenuata leptoderma, peristomii dentibus ciliisque longissimis angustissimis papillatis. (TAB. CLXXVII. Fig. 5.)

HAB. Near springs, on Mount Wellington (very scanty specimen); growing on dead twigs, with *Hypnum aciculare*. (Oldfield, 67.)

About half the size of *D. splachnoides*, Hook. and Tayl.—*Stem* 2 lin. *Leaves* smaller, paler, and somewhat narrower; the *areolæ* rather smaller. *Seta* scarcely 2 lin. long, very slender. *Peristome* half as long as the capsule, or more, widely spreading and recurved when wet; *teeth* reddish-brown, distantly trabeculate. *Calyptra* fringed at the base.—Allied to *D. angustifolia*, Dz. and Molk., but that, as described, has a different peristome and larger capsule.—PLATE CLXXVII. Fig. 5; 1, branch and fruit; 2, leaf; 3, capsule; 4, calyptra:—all magnified.

### NAT. ORD. VI. HEPATICÆ.

(Auctore Gul. Mitten, A.L.S.)

The Tasmanian *Hepaticæ*, of which 126 are here enumerated, present a few species which appear to be peculiar to the Island, the remainder being found in New Zealand and Fuegia. One-third of the species included in the Flora of New Zealand have not yet been found in Tasmania; of these some, as *Plagiochila Stephensoniana*, *P. Arbuscula*, *P. gigantea*, and *Madotheca Stangeri*, are so large that they would scarcely have been overlooked if they were so generally distributed in Tasmania as they appear to be in the islands of New Zealand. The larger species of *Lejeunia* seem also to be absent, and *Riccia* has no representative. It can hardly be supposed that these are entirely wanting in Tasmania, but their absence from the collections yet received shows that if present they are rare. As in the Flora of New Zealand, there occur here also some species described by Dr. Taylor, of which nothing further is now known; his descriptions and remarks have therefore been inserted in their respective places in the arrangement, which is the same as that adopted in the 'Flora of New Zealand.'





Gen. I. JUNGERMANNIA, *Linn.*

1. **Jungermannia perigonalis** (Hook. fil. et Tayl. Fl. Antarct. p. 33. pl. 62. f. 7). (TAB. CLXXVIII. Fig. 1.)

HAB. Rocks near Cumming's Head, Western Mountains, *Archer*.

*Perianthium* tubulosum, elongatum, apice contracto plicato denticulato. *Folia involucralia* caulinis ambitu oblongis sinu acuto acute bidentatis fere conformia, margine dorsali integerrimis denticulo uno alterove instructis. *Amphigastrium* involucrale linguæforme, obtusum retusumve.

The figure before given of this small species represents only the male plant with perigonal leaves. It seems to differ from all the other small bidentate *Jungermanniæ* found in the Antarctic regions in its dark stems, which, as well as the brown leaves, are rather glossy. The *Jungermannia minuta* mentioned in Fl. Antarct. p. 40, is identical with *J. ochrophylla* of the same work.—PLATE CLXXVIII. Fig. 1; 1, portion of the stem, with leaves and perianth; 2, leaf, removed from the stem; 3, involucral leaves and stipule:—*all magnified*.

2. **Jungermannia monodon** (Hook. fil. et Tayl. Lond. Journ. Bot. 1844, p. 559; Gottsche, Lindenbergl, et Nees von Esenbeck, Synopsis Hepaticæ, p. 664; Mitten, in Fl. N. Zeal. pl. 94. f. 2).

HAB. Tasmania, *Spence, Gunn*.

3. **Jungermannia Tasmanica** (Hook. fil. et Tayl.); caule cæspitose adscendente ramoso, foliis imbricatis patentibus oblongis margine utroque recurvo integerrimo, perianthio terminali oblongo tumido obtuso subincurvo sursum obtuse quadruplicato, ore minute denticulato, foliis involucralibus binis digitato-laciniatis perianthio adpressis.—*J. revolvens*, *Hook. fil. et Tayl. Lond. Journ. Bot.* 1846, p. 275. *J. Tasmanica*, *corund. l. c. p.* 274; *G. L. et N. Syn. Hep. pp.* 675 et 678. (TAB. CLXXVIII. Fig. 2.)

HAB. Amongst and creeping over a *Peltigera*, Circular Head, and with *Mastigobryum Novæ-Hollandiæ*, near Yorktown, *Gunn*. Brown's River Gully, *Oldfield*.

Fusco-viridis. *Caulis* pollicaris, vage ramosus, repens adscendensve. *Folia* ovato-oblonga, obtusa, interdum retusa, marginibus recurvis.

*J. elongella*, Taylor, which is probably the same as the East Indian *J. orbicularis*, appears to have no character whereby it can be distinguished from this species.—PLATE CLXXVIII. Fig. 2; 1, portion of the stem, with leaves:—*magnified*.

4. **Jungermannia colorata** (L. et Ldbg.).

HAB. On a stunted *Fagus*, at an elevation of 2000 feet. St. Patrick's River, *Gunn*. On rocks: Goat Hills, New Norfolk; Grass-tree Hill, and Hospital Bay, South Huon, *Oldfield*; gathered also by Mr. Archer.

5. **Jungermannia marginata** (Mitten); caule erecto ramoso rigido, ramulis sæpe flagelliformi-atenuatis, foliis patentibus antice secundis ovalibus integerrimis apice obtusis rariusve retusis margine incrassato e stratis duabus cellularum composito, amphigastriis ovatis bifidis. (TAB. CLXXVIII. Fig. 3.)

HAB. Arthur's Lakes, *Gunn*. Brown's River Gully, *Oldfield*.

Sordide fusco-viridis vel nigrescens. *Caulis* bipollicaris et altior, flexuosus, ramis sæpe gracilibus flagelliformibus commixtis. *Incrassatio* foliorum margines quasi ab inflexione adglutitioneque serierum duarum cellularum ut tertiam in margine extremo transverse imposita est. *Amphigastria* diametro cauli adæquantia.

A rigid species, with some resemblance to elongated states of *J. scalaris*, but larger and with more oval leaves. Its evidently margined leaves readily distinguish it from its allies.—PLATE CLXXVIII. Fig. 3; 1, portion of the stem, with leaves and stipule; 2, transverse section of the margin of leaf:—*both magnified*.

6. **Jungermannia dentata** (Raddi; G. L. et N. Syn. Hep. p. 143).



HAB. On a charred tree: Asbestos Hills, near Yorktown, *Gunn*. On rotten timber: Grass-tree Hill; and on charred wood, in damp places, *J. D. H.* Common on the hills, New Norfolk, etc., *Oldfield, Archer*.

These specimens, in colour and habit, as well as in the circumstance of their growing upon charred wood, agree very nearly with that form of *J. divaricata* which was described by Dr. Taylor as *J. exiliflora*. When compared however with that species, they are readily distinguished by the leaves having a certain braided appearance; the margins of the leaves are everywhere recurved; at the base, on the outer side, they are sometimes spinuloso-papillose, but the small teeth of the edges, from their downward direction, often present the same appearance when the papillæ are absent. These different states are all found in European specimens. The *J. squarrosula*, Taylor, from Swan River, is synonymous with *J. divaricata*. *J. tubulata*, Crypt. Antarct. t. 157. f. 6, differs in no way from ordinary states of *J. bicuspidata*. *J. physocaula*, Crypt. Antarct. t. 156. f. 1, seems to be very nearly allied to *J. bicuspidata*, but is more rigid; it has however no resemblance to *J. concinnata*. *J. longiacypha*, Taylor, from Swan River, is not different from *J. setacea*; also *J. asperifolia*, Taylor, from Madeira, is a slender form of *J. dentata*.

7. **Jungermannia pulchella** (Hook. Musc. Exot. t. 94; G. L. et N. Syn. Hep. p. 120).

HAB. Tasmania, *Oldfield*.

Gen. II. PLAGIOCHILA, *Nees et Mont.*

1. **Plagiochila falcata** (Hook. Musc. Exot. t. 89; G. L. et N. Syn. Hep. p. 649).

HAB. Tasmania, *Gunn, Archer*. Dense tufts, on rocks: Goat Hills; and on rocks, in streams, Kermadie Rivulet, South Huon, *Oldfield*.

The stems of these specimens are 3 inches or more in height; the leaves erecto-patent and rather loosely disposed; in the lower parts of the stems they are quite entire, but as they approach towards the apex they become more and more denticulate.

2. **Plagiochila biserialis** (L. et Ldbg.; Lindenberg, Sp. Hep. p. 126. t. 26; G. L. et N. Syn. Hep. pp. 53 et 652).

HAB. Macquarrie River, *Hb. Taylor*. On an old stump of *Fagus Cunninghami*, at an elevation of 2000 feet, *Gunn*.

3. **Plagiochila pusilla** (Mont.; Lindenberg, Sp. Hepat. p. 164; G. L. et N. Syn. Hep. p. 53).

HAB. Tasmania, *Hb. Montagne, et Nees ab Esenbeck*.

4. **Plagiochila Magellanica** (Lindenberg, Sp. Hep. Plagiochila, p. 164; G. L. et N. Syn. Hep. p. 53).—*P. Lindenbergiana*, *Lehm. in Linnæa*, iv. p. 367; *Pug. pl.* 3. p. 53; *G. L. et N. Syn. Hep.* p. 59. *P. sphaera*, *Hook. fil. et Tayl. Crypt. Antarct. p.* 121. t. 156. f. 8. *P. unciformis*, *eorund. l. c.* p. 119. t. 156. f. 5; *Syn. Hep. p.* 653.

HAB. Acheron River, *Gunn*.

The Tasmanian specimens of this species are larger than any of those collected at Cape Horn, and have all their leaves entire; in every other respect they correspond so nearly that they may be supposed to be an entire-leaved variety, similar to those observable in several allied species, as *P. falcata* and *P. retrospectans*. The inflexion of the dorsal margins of the leaves readily distinguishes *P. Magellanica* from its allies; the leaves themselves vary in being patulous or appressed, but their form is the same in all the plants described as above, and referred to this species.

5. **Plagiochila retrospectans** (Nees ab E.; Lindenberg, Sp. Hep. p. 123. t. 26; G. L. et N. Syn. Hep. p. 52 et 650).—*Plagiochila ophisthotona*, *Tayl. Lond. Journ. Bot.* 1844, p. 577; *G. L. et N. Syn. Hep. p.* 652.



Var.  $\beta$ ; foliis integerrimis.

HAB. Var.  $\alpha$ . Tasmania, *Gunn*. St. Patrick's River, 28th October, 1845, *Gunn*. Near Hobarton, *M. Hombron*. Brown's River Gully. Moist ground, springs: Mount Wellington, *J. D. II*. Dense tufts, on rocks, with *P. falcata*: Goat Hills, *Oldfield*. Var.  $\beta$ . With the first, from St. Patrick's River, *Gunn*. Cumming's Head, Western Mountains, *Archer*.

The description of Dr. Taylor's *P. ophiostolona* seems to correspond so well with the present species, that it may be easily supposed that it is but one of those instances in which Dr. Taylor imposed a name of his own on an already described species; but as no specimens so marked by him are in British herbaria, it is impossible to be certain if this reference is correct. The form distinguished as var.  $\beta$  differs in having its leaves everywhere entire; in every other respect they agree with those of the denticulate state. The areolation of the leaves is remarkably minute for the size of the plant.

6. **Plagiochila Lyallii** (Mitten, in *Fl. N. Zeal.* p. 132. pl. 96. f. 4).

HAB. St. Patrick's and Acheron Rivers, *Gunn*.

These specimens are a little larger than those from New Zealand, but have the same habit, and the leaves a little more directed towards the ventral side. The figure of the perianth in the plate above quoted represents it much too short; in another New Zealand specimen since received, the mature perianth coincides in shape with that of *P. incurvicolla*, represented in the same plate, fig. 2.

7. **Plagiochila fasciculata** (Ldbg. *Sp. Hep.* t. 1).—*P. aculeata*, *Tayl. Lond. Journ. Bot.* 1844, p. 578; *G. L. et N. Syn. Hep.* p. 627.

HAB. St. Patrick's River, 16th November, 1844, *Gunn*. South Huon, *Oldfield*, *Archer*.

The specimens marked *P. aculeata* by Dr. Taylor in Herb. Hooker, are precisely the common state of *P. fasciculata*, but amongst the specimens distributed under the name of *P. aculeata*, some have been found to belong to *P. Stephensoniana*, a species not yet received from Tasmania. *P. uncialis*, to which Dr. Taylor compared his *P. aculeata*, is a species belonging to the same group as *P. fasciculata* and *P. spinulosa*. In *Crypt. Antart.* t. 156. f. 7, the leaves are represented with teeth on the dorsal margin, which does not appear to be commonly the case, however it might have been in the specimen from which the figure was drawn; the teeth too on the ventral side are represented too numerous.

8. **Plagiochila deltoidea** (Ldbg. *Sp. Hep. Plagiochila*, p. 132. t. 27; *G. L. et N. Syn. Hep.* p. 55).

HAB. Tasmania, *Labillardière*.

9. **Plagiochila strombifolia** (Taylor); caule repente, ramis adscendentibus vage ramosis, ramulis elongatis supremis fasciculatis, foliis imbricatis semiovatis convexis deflexis obtusiusculis breviter decurrentibus patulis, margine ventrali rotundatis apiceque parcius inæqualiter dentatis, dorsali rectis subinflexis integerrimis vel ad apicem denticulatis, fructu in dichotomia, perianthio ovato, ala nulla, ore dentato.—*G. L. et N. Syn. Hep.* p. 655. *Jungermannia strombifolia*, *Tayl. Lond. Journ. Bot.* 1844, p. 578. (TAB. CLXXVIII. Fig. 4.)

HAB. Tasmania, *J. D. H.*, *Gunn*, *Oldfield*.

Sordide fusco-viridis. *Caulis* bi-quadrifurcatus, dichotome ramosus. *Folia* patula, late ovata, obtusa, margine ventrali apiceque dentibus brevibus spinosis remotiusculis dorsali recurvo integerrimo, involucralia conformia dentibus numerosioribus validioribusque munita. *Perianthium* elongato-oblongum, ore compresso, labiis rotundatis subtruncatis dentatis. *Spicis* masculis elongatis, foliis saccatis imbricatis apice patentibus bidentatis.

Resembles *P. deltoidea* in appearance, but its leaves are less deltoid, and more of an ovate outline, and the teeth are more spinous; the perianth too is of a different form, and there is no dorsal wing.—PLATE CLXXVIII.



Fig. 4; 1, a male, and 2, a female plant, of the *natural size*; 3, a portion of the stem, with leaf; 4, a perianth, removed from the stem; 5, a portion of the male spike, with perigonal leaves:—*all magnified*.

10. **Plagiochila Stuartiana** (Gottsche, Icon. Hepat. ined.); examphigastriata, ramis adscendentibus innovando-ramosis, foliis subheteromallis obovato-cordatis apice rotundo-obtusis margine dorsali subrecto integerrimo subreflexo vel apicem versus reflexo-involuto descendentibus sub apice et ventrali margine arcuato-dentatis, fructu . . . , spica mascula e 7-9 paribus foliorum perigonalium subbidentulorum cæteroque integerrimorum conflata.—*Gottsche, in Plantæ Muellerianæ*.

HAB. Tasmania, *Stuart*.

In systemate in vicinitate *P. ambigua*, Ldbg. et Hampe in *Linnaea*, t. 24. p. 640, ponenda.—*Gottsche*.

### Gen. III. LEIOSCYPHIUS, *Mitten*.

1. **Leioscyphus chiloscyphoideus** (Mitten).—*Plagiochila chiloscyphoidea*, *Lindenberg et Lehm. Pug.* viii. p. 4; *Montagne, in Voy. au Pôle Sud*, i. p. 267. *Chiloscypus amphibolius et C. retusatus*, *Hook. fil. et Tayl. Flor. Antarct.* p. 441. *Lophocolea multipenna*, *eorund. l. c.* p. 43.

HAB. Amongst *Mastigobryum accretum*: St. Patrick's River, *Gunn*.

*Chiloscypus amphibolius*, Nees ab E., gathered in Brazil by Dr. Vou Martius, is a smaller species, and has leaves of a thinner texture than any of the specimens here referred to the *Plagiochila chiloscyphoidea* of Lindenberg, a plant which possesses all the characters attributed to *Leioscyphus*, having the habit of *Lophocolea* or *Chiloscypus*, and the perianth of *Plagiochila*. Besides the three species which Dr. Taylor made of this plant, it composed part of his *Lophocolea pallide-virens*, probably all that part regarded by him as "(status minor) omnino fuscatis," for the specimens are all of a brown colour, not observable in the *Lophocolea* itself. The bulk of the specimens of *Lophocolea multipenna* undoubtedly belong to the present species; but creeping over it in very small quantity is a perfectly distinct species of *Lophocolea*, which seems to have furnished part of the characters designating *L. multipenna*, particularly the triquetrous perianth; but the form of the leaves, "obovatis" and "ovato-oblonga," relates alone to a rather smaller than usual state of *Leioscyphus chiloscyphoideus*, and specimens exactly similar were gathered at Cape Horn. To this genus belongs *L. æqualis*, *Flor. Antarct.* p. 433. t. 158. f. 3, *L. stronglylophyllus*, l. c. t. 62. f. 9, *L. reclinans*, l. c. t. 159. f. 1, of which the perfect perianth is nearly three times longer than broad, compressed, the mouth truncate and smooth; about half an imperfect perianth is represented in the figure 4. In *L. turgescens*, l. c. t. 64. f. 2, the perianth is compressed, the mouth wide, and the lips smooth; but it presents slight indications of being formed of three parts, namely the two uppermost leaves and amphigastrium, for there are often two notches in the mouth, just where the line of union must be supposed to be.

### Gen. IV. LOPHOCOLEA, *Nees*.

1. **Lophocolea heterophylloides** (Nees ab E.; G. L. et N. Syn. Hep. p. 157).—*L. submarginata*, *Hook. fil. et Tayl. Lond. Journ. Bot.* 1846, p. 367; *G. L. et N. Syn. Hep.* p. 696.

HAB. On logs under water, and on the earth and decayed wood: St. Patrick's River. Yorktown Rivulet, *Gunn*. Johnny's Creek, New Norfolk. Springs: Mount Wellington, *J. D. II*. Dense tufts, on stones: Back River Gully. Near the Derwent, Port Esperance, and Woodburn, near Richmond, *Oldfield*. Rivulets: Cheshunt, *Archer*.

2. **Lophocolea Gunniana** (Nees ab E.; G. L. et N. Syn. Hep. p. 169).

HAB. In tufts of grass: Hampshire Hills, *Gunn*, 1838, *III*. *Nees ab Esenbeck*. Also on logs under water, in St. Patrick's River, 26th November, 1844, *Gunn*.

This species is retained as distinct from the preceding, from the absence of decided intermediate specimens, but





there are not wanting some which seem to indicate that, like some of the forms of *L. Novæ-Zelandiæ*, the form of the stipule may be considerably modified, as well as the habit of the plants, by the situation in which they may have grown.

3. **Lophocolea austrigena** (Taylor).—*Jungermannia austrigena*, *Hook. fil. et Tayl. Flor. Antarct. p. 125. t. 157. f. 7, et t. 158. f. 5*; *G. L. et N. Syn. Hep. p. 702*.

HAB. Growing in water on the top of Fatigue Hill, elev. 4000 feet. A smaller form submersed: St. Patrick's River, *Gunn*. Wet places, in gullies, near Brown's River, *Oldfield*.

All the Tasmanian specimens of this plant are very much smaller than those from Hermite Island, but in other respects offer nothing to distinguish them. The species is an undoubted *Lophocolea*, and is closely allied to *L. palustris* (*Jungermannia palustris*, *Hook. fil. et Tayl. Flor. Antarct. p. 431. t. 157. f. 8*), and to *L. otophylla* (*Jungermannia otophylla*, *Hook. fil. et Tayl. Flor. Antarct. p. 433. t. 158. f. 4*), which has a trigonous, ovate-oblong perianth, the lips entire and undulate. Amongst the Antarctic species which have been erroneously referred to *Chiloscyphus* are *Lophocolea fuscovirens* (*Jungermannia*, *Flor. Antarct. t. 440. f. 7*), where the figure justly represents it as a *Lophocolea*, and *L. australis* (*Jungermannia*, *Flor. Antarct. p. 156. t. 65. f. 3*), but the perianth is falsely described and figured as bialate and bilabiate, its true form being prisinatic, and of course trilabiate.

4. **Lophocolea Tasmanica** (Mitten); caule procumbente ramoso, foliis divaricatis explanatis subovatis apice sinu parvo subobliquo bidentatis cæterum integerrimis per paria cum amphigastrio parvo quadridentato coalitis involucribus subellipticis recurvatione marginum integerrimarum vel rarius in margine dorsali unidentulato, convexis apice bidentatis cum amphigastrio ovali breviter bidentato et utrinque unidentulato connatis, perianthio prismatico angulis alatis, alis labiisque dentatis. (TAB. CLXXVIII. Fig. 5.)

HAB. On rotten wood, *Archer*.

Viridis. *Caulis* uncialis, prostratus, vage ramosus. *Folia* explanata, cellulis teneris pellucidis limitibus angustis.

Nearly allied to *L. connata*, Sw., and *L. Beecheyana*, Taylor. From the first it differs in the form of the leaf and emargination, the sinus being narrower, and the cells have thinner walls; from *L. Beecheyana*, as well as from *L. Martiana*, Nees, it recedes in the entire ventral margins of its involucrial leaves.—PLATE CLXXVIII. Fig. 5; 1, a portion of the stem, with leaves and stipule; 2, a perianth, removed from the involucrial leaves; 3, involucrial leaves and stipule:—*all magnified*.

5. **Lophocolea lenta** (*Hook. fil. et Tayl. Fl. Antarct. p. 154*; Mitten, in *Fl. N. Zeal. p. 136. t. 197. f. 2*).—*L. diademata*, *corund. Lond. Journ. Bot. 1844, p. 560*; *G. L. et N. Syn. Hep. p. 692*. *L. secundifolia*, *Hook. fil. et Tayl. l. c. p. 438. t. 159. f. 2*.

HAB. Near Hobarton, *J. D. II.*

6. **Lophocolea bidentata** (Nees; *G. L. et N. Syn. Hep. p. 159*).

HAB. Tasmania, *Stuart*. Banks of the Derwent. Springs: Mount Wellington. Deep Gully, Mount Wellington. High bleak hill, Major's Falls, New Norfolk. In brackish swamps near the sea: Northwest Bay, *Oldfield*. Cheshunt, *Archer*.

7. **Lophocolea amplectens** (Mitten); caule cæspitose decumbente vage subpinnatim ramoso exili, foliis imbricatis subquadratis profunde emarginatis, laciniis acuminatis acutis amplectentibus, amphigastriis ovatis bifidis, segmentis extus unidentatis. (TAB. CLXXVIII. Fig. 7.)

HAB. Amongst rocks near the top of Mount Wellington, *Oldfield*.

Luteo-viridis, dein fuscescens. *Caulis* circiter semipollicaris, vage ramosus, rami persæpe foliis minoribus. *Folia* patentia, sinu lato emarginata, laciniis erectis subcomplicatis e cellulis parvis arcolata. *Amphigastria* caulem latitudine parum superantia, ambitu ovata.



In size and habit very nearly resembling the European *Hurpanthus scutatus*, Spruce (*J. scutata*, Hook.), but its leaves and stipules are of a different form, and were it not for the form of the stipule being exactly that which prevails in almost all the species of *Lophocolea*, it would rank nearer to some *Jungermanniæ*. Scraps of a species very similar, or perhaps even identical, have been picked from amongst Lichens from Cape Horn, the Falklands, and Campbell's Island.—PLATE CLXXVIII. Fig. 7; 1, a portion of the stem, with leaves and stipule:—*magnified*.

8. *Lophocolea decurva* (Mitten); caule procumbente subsimplici, foliis ovatis sinu parvo obtuso breviter bidentatis margine dorsali rectiusculo basi longe decurrente ventrali arcuato, amphigastriis late ovatis concavis marginibus inflexis ad tertiam partem, dentibus subulatis recurvis bidentatis. (TAB. CLXXVIII. Fig. 6.)

HAB. Amongst *Gottschea Lehmanniana*, Nees, and *Symphogyna flabellata*, N. et M. St. Patrick's River, Gunn.

Amœne viridis. Caulis pollicaris, gracilis. Folia imbricata, apice decurva. Amphigastria magna, concava.

A small plant, readily distinguishable by its concave stipules, which have their two slender teeth bent back. In general appearance it has more resemblance to some small forms of *Plagiochila Mauritianæ*, Nees, than to any *Lophocolea*.—PLATE CLXXVIII. Fig. 6; 1, a portion of the stem, with leaves; 2, the stipule, as seen on the ventral side of the stem; 3, transverse section of the stipule, showing its incurved margins.

9. *Lophocolea Novæ-Zelandiæ* (Nees; G. L. et N. Syn. Hep. p. 168).

HAB. Near Hobarton, *J. D. H.*

10. *Lophocolea leucophylla* (Tayl.; G. L. et N. Syn. Hep. p. 155).

HAB. Tasmania, *Herb. Greville*. A few slender stems have been picked from amongst other *Hepaticæ* from the Acheron River, gathered by *Mr. Gunn*.

11. *Lophocolea muricata* (Nees ab E.; G. L. et N. Syn. Hep. pp. 169 et 703).—*L. hirtifolia*, *Hook. fil. et Tayl. Lond. Journ. Bot.* 1846, p. 366; *G. L. et N. Syn. Hep. p. 703*.

HAB. On *Slicta chloroleuca*, *Hook. fil. et Tayl., J. D. H.* On the old fronds of a Fern: St. Patrick's River, Gunn.

The geographical range of this little species appears to be very extensive. It is to be found throughout South America, including Panama, as well as in Java and in India.

#### Gen. V. CHILOSCYPHIUS, Corda.

1. *Chiloscyphus conjugatus* (Mitten); caule repente elongato parce dichotome ramoso, foliis imbricatis oblongo-rotundatis perfoliatis margine dorsali remotiuscule spinuloso-dentato basi in marginem folii oppositi transverse abeunte margine ventrali integerrimo et basin versus sinu rotundo cum amphigastrio suborbiculato basi utrinque sinuato et ibidem dentibus paucis spinosis armato superne minute sparseque dentato coalito. (TAB. CLXXIX. Fig. 2.)

HAB. In a rivulet near the Acheron River, with *Gottschea ciliata*, *G. Lehmanniana*, and *G. pinnatifolia*, October 2nd, 1845, Gunn.

Fuscus. Caulis semipedalis, erectus ascendensve. Folia antice subconniventia, perfecte perfoliata, margine dorsali vel minute spinuloso-denticulato vel integerrimo. Amphigastria magna dimidiam folii adaequant, superne margine parce denticulato incurvo caviuscula. Textura foliorum e cellulis minutis rotundatis intercalaribus distinctis.

Without exception the largest species of the genus. In external appearance and colour it resembles *C. Billardieri*, but the form of its leaves, and particularly that of the stipules, which resemble nothing so much in outline as the human occiput as seen from behind, render it very distinct from all allied species. The united dorsal margins



cross the stem transversely without the least tendency to decurrence. The apices of the leaves being a little incurved, and the leaves themselves subconnivent, give the plants a canaliculate appearance.—PLATE CLXXIX. Fig. 2 ; 1, a portion of the stem, with leaves and stipule :—*magnified*.

2. **Chiloscyphus Billardieri** (Nees ab E. ; G. L. et N. Syn. Hep. pp. 175 et 704).

HAB. Tasmania, *Labillardière*, *Menzies*.

3. **Chiloscyphus Gunnianus** (Mitten) ; caule repente vage ramoso, foliis imbricatis perfoliatis subdeltoideis apice bispinosis margine dorsali spinoso-dentato in folium oppositum late transeunte margine ventrali bidentato basin versus valde arcuato in amphigastrium transverse oblongum apice breviter bidentatum lateribus extus circiter quadridentatis decurrente. (TAB. CLXXVIII. Fig. 8.)

HAB. Tasmania, *Gunn*.

Sordide pallide fusca. *Caulis* bipollicaris, flaccidus. *Folia* explanata, margine dorsali apicem basinque versus dentibus subulatis spinoso-dentato, medio sæpe læviusculo, apice ut plurimum bispinoso, rarius unispinoso, margine ventrali undulato, dentibus latioribus. *Amphigastria* transverse oblonga vel latissime cordata, sinu brevi rotundato breviter bidentata, lateribus utrinque medium versus breviter quadridentatis. *Textura* foliorum tenera, e cellulis parvis hexagonis intercalariis nullis composita. *Spicæ* masculæ breves, foliis ovatis acutis dentatis concavis, inter folia amphigastriaque omnino latentia.

A remarkable species, possessing considerable resemblance to *C. Billardieri* in the general outline and dentation of its leaves, but its areolation is altogether different.—PLATE CLXXVIII. Fig. 8 ; 1, a portion of the stem, with leaves and stipule :—*magnified*.

4. **Chiloscyphus fissistipus** (Hook. fil. et Tayl. Flor. Antarct. p. 157).

HAB. Tasmania, *Labillardière*. St. Patrick's River, 28th October, 1845, and Circular Head, *Gunn*. Back River Gully, *Oldfield*. Tents Creek, *Archer*.

5. **Chiloscyphus cymbaliferus** (*Jungermannia*, Hook. fil. et Tayl. Flor. Antarct. p. 137. t. 64. f. 5 ; G. L. et N. Syn. Hep. p. 711).

HAB. Mount Wellington, *Mossman*, 780, *in part*.

6. **Chiloscyphus sinuosus** [Hook.] (G. L. et N. Syn. Hep. pp. 175 et 705).

HAB. Valleys near Hobarton, *J. D. II.* North-west Bay Gully, *Oldfield*.

7. **Chiloscyphus coalitus** [Hook.] (G. L. et N. Syn. Hep. pp. 180 et 706).

HAB. Tasmania, *Gunn*, *J. D. II.* Among other *Hepaticæ* : Back River Gully, Mount Wellington, *Oldfield*. West-end Rivulet, *Archer*.

The perianths of this species are small, campanulate, and with the laciniae of the unequally dentate mouth incurved. The involucreal leaves are minute and denticulate.

8. **Chiloscyphus laxis** (Mitten ; Hook. fil. Fl. N. Zeal. p. 142. pl. 99. fig. 1).

HAB. Growing amongst *Symphogyna flabellata* and *Lepidozia tenax*, *Gunn*. With *Radula buccinata* and *Melzgeria furcata* : Back River Gully. North-west Bay Gully, *Oldfield*.

9. **Chiloscyphus tridentatus** (Mitten) ; caule procumbente elongato subsimplici, foliis patentibus brevi-oblongis subquadratisve distiche explanatis apice truncatis breviter tridentatis sinibus obtusis marginibus recurvis superficiem convexam formantibus statu sicco vel humido immutatis, amphigastriis parvis quadridentatis basi uno latere cum folio coalitis, perianthio juvenili in ramo brevissimo laterale campanulato?—*C. combinatus*, *Mitten*, in *Fl. N. Zeal.* p. 141 ; *G. L. et N. ex parte Syn. Hep.* p. 182. (TAB. CLXXIX. Fig. 1.)

HAB. Tasmania, *Dumont d'Urville*, *Archer*. Damp ground : Grass-tree Hill, *Oldfield*. St. Patrick's River, *Gunn*.



Pallide fusco viridis. *Caulis* subuncialis, parce radiculosus. *Folia* firma, convexa, apice ut plurimum subtruncata, breviter tridentata, rarius bidentata.

A small species, often not much longer than *C. echinellus*, with rarely branched stems, and leaves of a firm texture, not altered in form or direction by drying. The original specimens of *C. combinatus*, kindly lent by Nees von Esenbeck, are a rather larger species, with soft and flaccid leaves composed of more lax cells.—PLATE CLXXIX. Fig. 1; 1, a portion of the stem, with leaves and stipule:—*magnified*.

10. **Chiloscyphus echinellus** (Mitten, in Fl. N. Zeal. p. 141).—Lophocolea echinella, *G. L. et N. Syn. Hep.* p. 703.

HAB. Creeping amongst Mosses, *Archer*.

#### Gen. VI. PSILOCLADA, *Mitten*.

1. **Psiloclada clandestina** (Mitten, in Fl. N. Zeal. p. 143. pl. 99. f. 4).

HAB. Tasmania, *Gunn*.

#### Gen. VII. GYMNANTHE, *Tayl.*

1. **Gymnanthe saccata** (Tayl. Fl. Ant. p. 153; *G. L. et N. Syn. Hep.* pp. 193 et 712).—*Jungermannia saccata*, *Hook. Musc. Exot. t.* 16.

HAB. Ovens Creek, *Archer*.

2. **Gymnanthe tenella** (Hook. fil. et Tayl. Lond. Journ. Bot. 1844, p. 377; *G. L. et N. Syn. Hep.* pp. 192 et 712). (TAB. CLXXIX. Fig. 3.)

HAB. St. Patrick's River, *Gunn*. Springs: Mount Wellington, *Oldfield*, *Mossman*. Brown's River, *Oldfield*. Cheshunt, *Archer*.

It appears that, although Dr. Taylor first distinguished this from *G. saccata*, he had afterwards misgivings that it was but a state of the same species, for notwithstanding the great difference in appearance between the specimens of *G. tenella* in Herb. Greville, and the larger states of *G. saccata*, differences for the most part owing to the subbidentate leaves and empty cells in the original specimens, all those received from New Zealand and Tasmania, although having the leaves of the same form, have the cells more or less replete with colouring matter, and agree in colour and substance with those of *G. saccata*, there being in reality no difference between the two in the size of the cells. It is greatly to be desired that *G. saccata*, *G. tenella*, and *G. Urvilleana* should be carefully observed in their places of growth, for it appears by no means improbable that they are but different states of the same species.—PLATE CLXXIX. Fig. 3; 1, a portion of stem and leaves:—*magnified*.

3. **Gymnanthe Urvilleana** (Tayl. Lond. Journ. Bot. 1844, p. 468; *G. L. et N. Syn. Hep.* pp. 193 et 712; Fl. Antarct. pp. 153 et 435).—*Scapania Urvilleana*, *Mont. Voy. au Pôle Sud, t.* 16. f. 2. *Plagiochila abbreviata*, *Tayl. (Jungermannia) Lond. Journ. Bot.* 1844, pp. 374 et 377; *G. L. et N. Syn. Hep.* p. 646.

HAB. Tasmania, *Gunn, J. D. H., Archer*.

4. **Gymnanthe cinerascens** (Lehm. et Ldbg.; Mitten).—*Jungermannia cinerascens*, *Lehm. et Ldbg. in Pug. pl.* 4. p. 46; *G. L. et N. Syn. Hep.* p. 78. (TAB. CLXXIX. Fig. 4.)

HAB. St. Patrick's River, *Gunn*.

Although the perfect torus of this species is yet wanting, there are sufficient indications present in the specimens to warrant its being placed in this genus. The stipules, overlooked in the description of the plants in the 'Synopsis Hepaticarum,' are nevertheless present as well in the specimen kindly contributed by Dr. Lehmann as in





those gathered by Mr. Gunn, but they are not obvious on all the stems, and are thus easily overlooked. The involucre leaves scarcely differ in form from the cauline, but are concave, and enclose four or five pistils, seated on the dorsal side of the abrupt and slightly thickened apex of the stem itself; within the involucre there has been observed a small stipule-like leaflet, but not apparently representing the stipule, which, although present, has no part in the formation of the torus in the plants of this and allied genera.—PLATE CLXXIX. Fig. 4; 1, a portion of the stem, with leaves and stipule; 2, a stipule, removed from the stem; 3, apex of the stem, with leaves; 4, the same, with front leaves removed to show the dorsal position of the pistils:—*all magnified*.

5. *Gymnanthe diplophylla* (Mitten).—*Jungermannia diplophylla*, *Hook. fl. et Tayl. Lond. Journ. Bot.* 1844, p. 377; *Fl. Antarct. p.* 40. *pl.* 64. *f.* 4. *Gottschea diplophylla*, *Nees ab E.*; *G. L. et N. Syn. Hep.* p. 624. (TAB. CLXXIX. Fig. 5.)

HAB. Bogs: Brown's River; and wet ground: Kermandie Rivulet, *Oldfield*. Elliot Rivulet, *Archer*.

*Caulis* in plantis fertilibus brevis, semiuncialis. *Torus* ex apice caulis arcuati descendens, brevis, cylindricus, violaceus, radicellis parvis obtectus. *Folia* superiora magis lacero-dentata. *Amphigastria* superiora caulinis conformia, usque ad medium fere tori protractis, ulteriora violacea.

The fertile plants of this most curious species were gathered in New Zealand by Mr. Kerr, and thus is set at rest the before very doubtful place of the present and of *G. erinacea* (*Jungermannia*), *Hook. fl. et Tayl. Fl. Antarct. pl.* 161. *f.* 4. Indeed the whole appearance of the barren plants of both species is so different from that of *G. saccata*, that without fertile specimens their affinity with *Gymnanthe* could hardly have been expected. The torus appears to agree in all particulars with that of *G. saccata*, and on the under side, that is to say, on the side next to the stem, the amphigastria are continued, the lower one having the same violet colour as the torus itself.—PLATE CLXXIX. Fig. 5; 1, apex of the stem, with the leaves on the front side removed, showing the torus with the stipules on its inner side.

6. *Gymnanthe concinna* (Mitten); caule repente ramoso, foliis imbricatis oblongo-ovatis concavis apice rotundatis sursum conniventibus vel parum explanatis, involucrelibus majoribus conformibus vel apice retusis, toro . . . (TAB. CLXXIX. Fig. 6.)

HAB. Tasmania, *Gunn*, creeping over *Jungermannia Tasmanica*, *Tayl.*

Pallide viridis. *Caulis* 3-8-linearis, hic illic radiculosus, apice fructifero descendente. *Folia* apicem versus sensim majora, involucrealia convoluta. *Torus* juvenilis (apex caulis incrassatus) archegoniis 5-6 præditus.

A very small species, of a very neat habit, and with somewhat the look of the stems of some states of the European *Jungermannia nana*, *Nees*. The apex of the stem is slightly thickened, and curved downwards, and the involucre leaves being directed upwards at right angles, give the stems of this and some allied species an abrupt appearance. The areolation is similar to that of *G. Urvilleana*. A few stems of apparently the same species have been picked from a specimen of *Marchantia globosa*, *Bischoff*, from the Cape of Good Hope. *G. concinna* is closely allied to *G. lutescens*, from the East Indies, and *G. Bustillosii*, *Mont.*, from Peru, but is easily distinguished by the characters above given.—PLATE CLXXIX. Fig. 6; 1, a portion of the stem, with leaf; 2, apex of the stem, with leaves; 3, the same, with the leaves removed from the front side to show the pistils:—*all magnified*.

7. *Gymnanthe Drummondii* (Mitten, in *Fl. N. Zeal.* p. 144. *pl.* 99. *f.* 8).

HAB. Bogs: Brown's River, *Oldfield*.

#### Gen. VIII. LEPIDOZIA, *G. L. et N.*

1. *Lepidozia microphylla* (*Hook.*; *Ldbg. Sp. Hep. Lepidozia*, p. 16. t. 2).—*Jungermannia microphylla*, *Hook. Musc. Exot. t.* 80.

HAB. Acheron River, *Gunn*.



2. **Lepidozia procera** (Mitten); caule erecto simpliciter pinnato, ramis breviusculis attenuatis decurvis, foliis minutis erecto-patentibus remotis ovato-quadratis quadrifidis, laciniis rectis acutis, amphigastriis minoribus subquadratis quadrifidis. (TAB. CLXXX. Fig. 1.)

HAB. Tasmania, Gunn. Mount Wellington, among *Plagiochila retrospectans* and *L. Ulothrix*, *Oldfield*.

Pallide fusca. *Caulis* semipedalis, gracilis, simplex. *Rami* graciles, attenuati. *Folia* remota, e cellulis parvis areolata.

Similar in appearance to some states of *L. microphylla*, but differing in the narrower outline of its stems (owing to the shortness of the branches), and the leaves are more deeply quadrifid with more acute laciniæ, which are not collected together at their apices, but stand out from each other.—PLATE CLXXX. Fig. 1; 1, a portion of the stem, with leaves; 2, a leaf, removed from the stem:—*all magnified*.

3. **Lepidozia quadrifida** (Ldbg.; idem et Gott. Sp. Hep. Lepidozia, p. 23. t. 4; G. L. et N. Syn. Hep. p. 203).

HAB. St. Patrick's River, Gunn.

4. **Lepidozia capilligera** (Schwægr.; Ldbg.; idem et Gott. Sp. Hep. Lepidozia, p. 25. t. 4; G. L. et N. Syn. Hep. p. 204).

HAB. Tasmania, *Labillardière* [Herb. Montagne]. The Falls, *Archer*. Castle Forbes Bay Rivulet, *Oldfield*. Mount Wellington, *Mossman*, 780 *in part*.

5. **Lepidozia prænitens** (Lehm. et Ldbg.; G. L. et N. Syn. Hep. p. 206; Ldbg. et G. Sp. Hep. Lepidozia, p. 33. t. 6).

HAB. Brown's River, *Oldfield*.

6. **Lepidozia Gottscheana** (Ldbg.; Mitten, in Fl. N. Zcal. p. 145).

HAB. Tasmania, *Labillardière*, amongst *Sarcomitrium cochleatum*. St. Patrick's River, Gunn. On dead wood: Grass-tree Hill, *Oldfield*.

7. **Lepidozia centipes** (Tayl.; Ldbg. et Gott. Sp. Hep. Lepidozia, p. 29. t. 5; G. L. et N. Syn. Hep. p. 204).

HAB. Tasmania, Spence. On damp ground: Kermandie Rivulet, South Huon, *Oldfield*.

8. **Lepidozia glaucophylla** (Tayl.); caule simplice procumbente bipinnato, ramis æqualibus vel capillari-attenuatis, foliis subcontiguis semiverticalibus late ovato-quadratis planiusculis integerrimis quadrifidis laciniis acuminatis, amphigastriis distantibus patulis ovato-quadratis ad medium usque quadrifidis integerrimis.—*Tayl. Lond. Journ. Bot.* 1844, p. 580; *Ldbg. et Gott. Sp. Hep. Lepidozia*, p. 39; *G. L. et N. Syn. Hep.* p. 207.

HAB. Tasmania, Gunn. Back River Gully, New Norfolk. Castle Forbes Rivulet, South Huon, *Oldfield*. Rivulet at Cheshunt, and amongst *Sphagna*, Western Mountains, *Archer*.

Pallide glauco-viridis. *Caulis* pollicaris bi-tripollicarisve. *Folia* remotiuscula, fere quadrata, divergentia; laciniis brevibus, acuminatis, e cellulis minutis areolatis, subopacis, subalbidis.

Readily distinguished from all allied species by its glaucous-white colour.

9. **Lepidozia lævifolia** (Tayl. Fl. Antarct. p. 157; G. L. et N. Syn. Hep. p. 208; Ldbg. et G. Sp. Hep. Lepidozia, p. 47. t. 7).

HAB. Back River Gully, with fruit, *Oldfield*. Cheshunt, *Archer*.

10. **Lepidozia cupressina** (Ldbg. Sp. Hep. Lepidozia, p. 42. t. 7; G. L. et N. Syn. Hep. p. 207).

HAB. Tasmania, *Dumont d'Urville*, Herb. Montagne et Nees.



11. **Lepidozia pendulina** (Ldbg.; idem et G. Sp. Hep. Lepidozia, p. 49. t. 7; Syn. Hep. p. 208).—*Jungermannia pendulina*, Hook. Musc. Exot. t. 60.  
HAB. North-west Bay Gully and Castle Forbes Bay Rivulet, *Oldfield*, *Archer*.
12. **Lepidozia Ulothrix** (Ldbg. Sp. Hep. Lepidozia, p. 57. t. 10; G. L. et N. Syn. Hep. p. 210).—*Lepidozia albula*, Hook. fil. et Tayl. Fl. Antarct. p. 47. pl. 65. f. 6.  
HAB. Tasmania, *Fraser*. North-west Bay Gully, and about springs, Mount Wellington, *Oldfield*. Ovens Creek, *Archer*.
13. **Lepidozia capillaris** (Swartz; G. L. et N. Syn. Hep. p. 212; Ldbg. et G. Sp. Hep. Lepidozia, p. 69. t. 6).  
HAB. Bare ground, in bogs: Brown's River, *Oldfield*.
14. **Lepidozia tenax** (Greville; Ldbg. et G. Sp. Hep. Lepidozia, p. 63. t. 12; G. L. et N. Syn. Hep. p. 212).  
HAB. With *Symphogyna flabellata* and *Chiloscyphus latus*: St. Patrick's River, *Gunn*. Brown's River, Castle Forbes Bay Rivulet, South Huon, *Oldfield*.
15. **Lepidozia Lindenbergl** (Gottsche; G. L. et N. Syn. Hep. p. 213; Ldbg. et G. Sp. Hep. p. 66. t. 11).  
HAB. A few slender stems creeping amongst *Chiloscyphus conjugatus*: Acheron River, *Gunn*.

## Gen. IX. MASTIGOBRYUM, G. L. et N.

1. **Mastigobryum Colensoanum** (Mitten, in Fl. N. Zeal. p. 147. pl. 100. f. 3).  
HAB. Tasmania, *Oldfield*.
2. **Mastigobryum involutum** (Ldbg.; G. L. et N. Syn. Hep. pp. 220 et 717).—*Herpetium involutum*, Mont. Voy. au Pôle Sud, t. 18. f. 2.  
HAB. Kangaroo Bottom, *J. D. II.* Goat Hills, *Oldfield*.
3. **Mastigobryum Novæ-Hollandiæ** (Nees; G. L. et N. Syn. Hep. pp. 221 et 717).  
HAB. Var. *a.* Tasmania, *Fraser*. Var. *γ.* St. Patrick's River, and near Yorktown, *Gunn*. Dense tufts, on rotten wood: Goat Hills, New Norfolk; and springs: Mount Wellington. Brown's River Gully, *Oldfield*. Cheshunt, *Archer*.
4. **Mastigobryum monilinerve** (Nees; G. L. et N. Syn. Hep. p. 223).  
HAB. With *Lophocola echinella*: the Snugg, Huon, *Oldfield*.  
*M. echinatum*, Gottsche; idem, Lindenberg, et Nees, Syn. Hep. p. 218. *Jungermannia dirhyncha*, Tayl., seems to have been recorded as from Tasmania by mistake, for the specimen in Herb. Greville is from the East Indies.

## Gen. X. ISOTACHIS, Mitten.

1. **Isotachis subtrifida** (Mitten, Fl. N. Zeal. p. 149).—*Jungermannia subtrifida*, Hook. fil. et Tayl. Lond. Journ. Bot. 1844, p. 579; G. L. et N. Syn. Hep. p. 681. (TAB. CLXXIX. Fig. 7.)  
HAB. Tasmania, *Lawrence*.  
PLATE CLXXIX. Fig. 7; 1, portion of the stem, with leaves and stipule; 2, leaf, and 3, stipule, removed from the stem:—all magnified.
2. **Isotachis Gunniana** (Mitten); caule erecto prolifero-ramoso, foliis cordatis conduplicatis apice



marginatis marginibus uno binisve dentibus armatis, amphigastriis paulo majoribus conformibus, foliis involucribus exterioribus latioribus interioribus minutis, perianthio cylindrico rugoso apice contracto diaphano. (TAB. CLXXIX. Fig. 8.)

HAB. Arthur's Lakes, Gunn, Archer.

Fusca. Caulis cæspitosus, uncialis biuncialisve, erectus. Folia divaricata, subverticalia, involucria caulinis similia, interiora minuta et perianthio adpressa. Perianthium cylindricum, crassum, rugosum, apice albidum, diaphanum, minute plicatum.

Very nearly allied to *I. madida* in size, colour, and habit, but with wider and less deeply notched leaves, which are also more distant and divaricate. The perianth, like that of *I. Lyellii* and *I. madida*, is remarkably thick and fleshy; in the last-named species it is composed of five strata of cells, the roughness on its exterior surface appears to be caused by the partial breaking up of the external wall of cells, and resembles that of the calyptræ of the *Sarcomitria*.—PLATE CLXXIX. Fig. 8; 1, a portion of the stem, with leaves and stipule; 2, a leaf, and 3, a stipule, removed from the stem; 4, the perianth, removed from the involucrial leaves; 5, the involucrial leaves and stipule, showing the smaller internal leaves:—*all magnified*.

3. *Isotachis intortifolia* (Mitten).—*Jungermannia intortifolia*, Hook. *fl. et Tayl. Crypt. Antarct. p. 38. pl. 64. f. 1.*

HAB. On rocks: Rivulet near Cumming's Head, Western Mountains, Archer.

#### Gen. XI. SCAPANIA, Ldbg.

1. *Scapania obtusifolia* (Mitten).—*Jungermannia obtusifolia*, Hook. *Brit. Jung. t. 26; G. L. et N. Syn. Hep. p. 76.* *J. domestica*, Gottsche, *Plantæ Muellerianæ*.

HAB. Rivulet near Cumming's Head, Western Mountains, Archer. Grass-tree Hill, Oldfield.

These specimens appear to agree in every respect with British examples; and although Dr. Gottsche has recently, from the Australian specimens gathered by Dr. F. Mueller, described it as a distinct species, yet the sum of the characters he has given amount only to this,—that the stems are a little longer, and the perianth a little shorter, than in European specimens of *Jungermannia obtusifolia*, with which he admits that it otherwise agrees: the Tasmanian specimens, evidently the same species as those from Australia, have not that appearance presented by Dr. Mueller's, from his having grown in a compact tuft. A careful examination of the insertion of the leaves of this species, as well as of those of *Jungermannia albicans*, has confirmed the fact, already suspected from the substance of the leaves themselves, that they belong to that section of the leafy *Hepaticæ* whose leaves are inserted with the dorsal angle nearest towards the apex of the stems,—incubous,—in this particular they are at once removed from *Jungermannia*, and agree with *Scapania*, excepting that the perianth is not appressed, but contracted at the mouth, contrary to the characters ascribed to *Scapania*; nevertheless precisely the same kind of perianth is sometimes produced by *S. undulata*, but whatever variations may take place in the form of the perianth, *Scapania*, with the additions here proposed, forms a most natural genus, whose place must be near to *Gottschea*.

2. *Scapania densifolia* (Nees ab E.; G. L. et N. Syn. Hep. p. 72).—*S. vertebralis*, Tayl.; G. L. et N. l. c. pp. 72 et 663. *Jungermannia densifolia*, Hook. *Musc. Erot. t. 36.*

HAB. Tasmania, Gunn.

There appears to be no difference, excepting the paler colour, to distinguish *S. vertebralis* from the present, and the perianth is, as in other species of the genus, flattened, and at the apex truncate.

#### Gen. XII. GOTTSCHIEA, Nees ab E.

1. *Gottschea pinnatifolia* [Hook.] (Nees; Syn. Hep. pp. 22 et 625).

HAB. In a rivulet near the Acheron River, with *Chiloscyphus conjugatus*, Gunn.





The leaves of the Tasmanian specimens of this species are scarcely at all sinuato-pinnatifid, but in other respects agree with those from New Zealand.

2. **Gottschea ciliata** (Mitten; Fl. N. Zeal. p. 151. pl. 101. f. 4).

HAB. In the same locality, and with the preceding species, *Gunn*.

3. **Gottschea Lehmanniana** (Ldbg. in Lehm. Pug. iv. p. 60; G. L. et N. Syn. Hep. pp. 20 et 623).

HAB. Dense forest near Franklin River. Near the Acheron River, and in a rivulet near the same, with the preceding species, *Gunn*. Back River Gully and elsewhere, common, *Oldfield*. Cheshunt, *Archer*.

#### Gen. XIII. POLYOTUS, *Gottsche*.

1. **Polyotus claviger** (Hook.; Gottsche; Fl. N. Zeal. p. 152).

HAB. Var.  $\gamma$ . *Taylori*. St. Patrick's River, *Gunn*.

2. **Polyotus brachycladus** (Tayl.; Gottsche; G. L. et N. Syn. Hep. p. 247). (TAB. CLXXX. Fig. 2.)

HAB. Tasmania, *Neill*, 1824, *Spence* (*Herb. Greville*).

PLATE CLXXX. Fig. 2; 1, a portion, with leaves and stipule, *magnified*.

3. **Polyotus Magellanicus** (Lamarck; Gottsche; G. L. et N. Syn. Hep. p. 248; Lamarck, Encyc. Bot. iii. p. 284; Hook. Musc. Exot. t. 115).

HAB. St. Patrick's River, in great profusion, and finely fruiting, *Gunn*. Mount Wellington and Kermadie River, South Huon, *Oldfield*. Cheshunt, *Archer*.

#### Gen. XIV. SENDTNERA, *Endlicher*.

1. **Sendtnera juniperina** (Sw.; Nees; G. L. et N. Syn. Hep. p. 230).

HAB. A few stems picked out of other *Hepaticæ*, gathered in Tasmania by *Mr. Gunn*. In bogs: summit of Mount Wellington, *Oldfield*.

These specimens, like those from New Zealand, correspond nearly with British states of the species, which differ so greatly in size from those found in tropical countries, and of which two, apparently mere forms, have been described by Dr. Taylor as distinct species, namely, *S. mucinata*, Tayl., which has its leaves more secund, and their margins more incurved, but otherwise presents no differences, and *S. pensilis*, Tayl. which seems to owe all its peculiarities to having grown in water. Both these states were gathered on the Andes, near Quito, by Professor Jameson.

2. **Sendtnera scolopendra** (Hook.; Nees; G. L. et N. Syn. Hep. pp. 241 et 723; Hook. Musc. Exot. t. 40).

HAB. Summit of Mount Wellington, *Oldfield*.

3. **Sendtnera flagellifera** (Hook.; Nees; G. L. et N. Syn. Hep. p. 242; Hook. Musc. Exot. t. 59).

HAB. Tasmania, *Gunn*.

#### Gen. XV. TRICHOCOLEA, *Dumort*.

1. **Trichocolea tomentella** (Ehrh.; Nees).

Var.  $\gamma$ . *Javanica*, G. L. et N. Syn. Hep. p. 237.

HAB. Forest near Macquarrie Harbour, *Gunn*. Port Arthur, *Oldfield*.



Gen. XVI. RADULA, *Nees ab E.*

1. **Radula buccinifera** (Hook. fil. et Tayl. Fl. N. Zeal. p. 154; G. L. et N. Syn. Hep. p. 261).

HAB. St. Patrick's River, *Gunn*. On rocks: Back River Creek and Brown's River, *Oldfield*. Rivulet at Cheshunt, *Archer*. Tasmania, *Stuart*.

2. **Radula aneurismalis** (Hook. fil. et Tayl.); caule exili implexo vage ramoso, ramis brevibus patentibus subsecundis tenuissimis, foliis laxis erecto-patentibus rotundatis exterius subangulatis concavissimis integerrimis lobo inferiori basi tumido incurvo apice recurvo adpresso angulato, perigoniis majoribus oblongo-lanceolatis spicatis apice proliferis.—*Loud. Journ. Bot.* 1845, p. 86; *G. L. et N. Syn. Hep.* p. 262.

HAB. On *Metzgeria furcata*: Tasmania, *J. D. H.*

"Creeping, scattered, pale olive-brown. Stems scarcely half an inch long; branches very slender, their leaves minute. Leaves cup-shaped, with an obtuse angle at the point most distant from the stem. The lobule has a tumid base, whilst its top lies flat on the inner part of the leaf, and has a single angle pointing outwards. The perigonia occur in the course of the shoots, and are remarkably long and large in proportion to the size of the stems. The present is the minutest of the *Radula* yet observed, and is readily distinguished by its peculiar perigonia."—*Dr. Taylor*.

Not now present in British herbaria. It is just possible that it is the male plant of *R. Novæ-Hollandiæ*.

3. **Radula Novæ-Hollandiæ** (Hampe; G. L. et N. Syn. Hep. p. 254).

HAB. Tasmania, *Herb. Stuart, Gottsche (Plantæ Muellerianæ)*.

4. **Radula physoloba** (Mont. in Voy. au Pôle Sud, Bot. Crypt. t. 17. f. 4).

HAB. Near Cumming's Head, Western Mountains, *Archer*.

Gen. XVII. LEJEUNIA, *Gottsche et Ldbg.*

1. **Lejeunia tumida** (Mitten; Fl. N. Zeal. p. 157. pl. 103. f. 3).

HAB. Tasmania, *Gunn*.

2. **Lejeunia rufescens** (Ldbg.; G. L. et N. Syn. Hep. p. 366).—*L. implexicaulis*, *Hook. fil. et Tayl. Fl. Antarct.* p. 165; *G. L. et N. Syn. Hep.* p. 376. *L. Mimosa* et *L. albivirens*, *Hook. fil. et Tayl. l.c.* p. 166. t. 66. f. 4; *G. L. et N. Syn. Hep.* pp. 377 et 387; *Fl. N. Zeal.* p. 158.

HAB. Creeping over *Hypnum extenuatum*, *Brid.*: St. Patrick's River, *Gunn*. On rocks: north side of Cataract, Launceston, *Archer*.

3. **Lejeunia Gunniana** (Mitten); caule repente vage ramoso, foliis imbricatis oblongo-ovatis obtusis lobulo parvo saccato apice involuto minute bidentato, amphigastriis majusculis orbiculatis sinu acuto bidentatis, foliis involucralibus fere conformibus lobulo lanceolato acuto amphigastrio oblongo-obovato, perianthio oblongo parum retuso compresso acute pentagono, angulis superne cellulis tumentibus minute crenulatis. (TAB. CLXXX. Fig. 3.)

HAB. Tasmania, *Gunn*. Brown's River, *Oldfield*.

Sordide fusca. Caulis semipollicaris, repens, vage ramosus, cæspitosus. Folia patentia, apicibus incurvis e cellulis magnis pellucidis interstitiis crassiusculis areolata. Amphigastria dimidium folii fere adæquantia, cauli adpressa, sinu dentibusque acutis. Folia involucralia aliquantulo obtusiora. Perianthium terminale sed ab innovatione ex uno latere caulis sæpissime laterale.

A small species, chiefly remarkable for its lax areolation, and for the minutely crenulate upper edges of the carinæ of its perianths. In size it resembles *L. rufescens*, but is much more flaccid, and all the specimens are of a



dirty-brownish colour.—PLATE CLXXX. Fig. 3; 1, a portion of the stem, with leaves and stipule; 2, perianth, with involucreal leaves and stipule, as seen from the ventral side; 3, transverse section of the upper part of the perianth:—*all magnified*.

4. **Lejeunia Tasmanica** (Gottsche, Icon. Hep. ined.); caulo repente inordinato ramoso, foliis imbricatis ovatis obtusis integerrimis apice declivibus basi sinuato-complicatis, lobulo majusculo inflato apice emarginato-truncato, amphigastriis erectis distantibus contiguive foliis triplo minoribus ovato-cordatis convexis ad medium fere bifidis, laciniis lauceolatis, fructu . . . —Gottsche, *Planta Muelleriana*.

HAB. Tasmania, creeping amongst *Radula buccinata*, Stuart.

Forma intermedia inter *L. tabularem* et *L. serpyllifolium*, priori tamen propinquior, sed statura minore, et amphigastriis foliorum respectu minoribus diversa.—Gottsche, *l. c.*

This appears to be nearly allied to *L. tumida*, and may even be identical with it.

5. **Lejeunia serpyllifolia** (Libert; G. L. et N. Syn. Hep. p. 374).

HAB. Cheshunt, on trees, *Archer*.

These specimens agree in all respects with European examples of the species, and possess the same property of staining the paper on which they are preserved of a dull-lead colour.

6. **Lejeunia lyratifolia** (Hook. fil. et Tayl.); caule minuto tenui subdisperso procumbente vage ramoso, foliis laxis patentibus subquadratis angulo antico exteriori producto, lobulis oblongis involutis, amphigastriis (duplicatis) bipartitis, segmentis lanceolatis divaricatis, perianthio axillari ex angusta basi obovato quadricarinato.—*Lond. Journ. Bot.* 1846, p. 393; *G. L. et N. Syn. Hep.* p. 756. (TAB. CLXXX. Fig. 4.)

HAB. Tasmania, creeping over a specimen of *Parmelia diatrypa*, Ach., *J. D. II.*

Cæsrites valde laxi, pallidissime fusco-olivacei. *Caules* vix trilineares, rami pauci, irregulares, folia lyræformia, margine exteriori recurva. *Perigonia* in spicis brevibus terminalibus. *Folia* involucrealia dorso coalita, erecta, biloba, segmentis acutis inæqualibus, ventre cum amphigastrio involucreali oblongo bifido connato. *Perianthium* usque ad medium longitudinem exsertum, carinis superne crosis.

A minute species, whose place is amongst those with a stipule at the base of every leaf, and generally with a few enlarged cells, giving their leaves a more or less regularly dotted appearance: these are not obvious in the present.—PLATE CLXXX. Fig. 4; 1, a portion of the stem, with leaves and stipules; 2, a perianth, with involucreum, as seen on the ventral side; 3, transverse section of the perianth:—*all magnified*.

#### Gen. XVIII. FRULLANIA, *Raddi*.

1. **Frullania Hampeana** (Nees ab E.; G. L. et N. Syn. Hep. p. 426).

HAB. Tasmania, *J. D. II.*

2. **Frullania probosciphora** (Taylor); caule vage pinnatim ramoso, foliis rotundo-ovatis obtusis integerrimis auriculis lunato-galeatis acuminatis acumine decurvo, amphigastriis orbiculatis bidentatis dentibus acutis utrinque bi-tridentatis, foliis involucrealibus ovatis acutis dentatis auriculo acuminato marginibus recurvis dentatis basi laciniatis, amphigastrio bipartito, laciniis lanceolatis dentatis, perianthio involucreum parum excedente obovato obtuso apiculato dorso convexo ventre unicarinato, angulis carinaque crispatis.—*Tayl. Lond. Journ. Bot.* 1846, p. 402; *G. L. et N. Syn. Hep.* p. 770. (TAB. CLXXX. Fig. 5.)

HAB. On the bark of trees: Circular Head, *J. D. II.* Cheshunt, *Archer*.

Fusco-rubra, albescens, scariosa. *Caulis* pollicaris, folia lata e textura tenera fragili. *Auriculæ* lunato-galeatæ marginibus orificii incurvi ut rostrum simulant. *Amphigastria* circiter sexdentata. *Perianthium* fragilissimum, antecessum capsulæ sæpe destructum.



Very nearly allied to *F. Hampeana*, but a larger species, remarkable in the few specimens yet seen for the discoloration and scarious appearance of its leaves. Its habit appears to resemble that of *F. dilatata*. The perianth is everywhere smooth except the angles, which are minutely undulate or suberispate.—PLATE CLXXX. Fig. 5; 1, plant, of the *natural size*; 2, a portion of the stem, with leaves and stipule; 3, involucreal leaves, stipule, and perianth, as seen on the ventral side; 4, transverse section of perianth:—*all magnified*.

3. **Frullania monocera** (Hook. fil. et Tayl. Lond. Journ. Bot. 1845, p. 89; G. L. et N. Syn. Hep. p. 418); caule implexo prostrato vage ramoso, foliis subimbricatis patentibus oblongo-ovatis rotundatis planis integerrimis, lobo inferiore galeæformi unispinoso deflexo, amphigastriis ovato-acuminatis bifidis dentatis, perianthio terminali obcordato trigono, angulis hirtis, ore tubifero.

HAB. Tasmania, amongst other *Hepaticæ*, *J. D. H.*

Cæspites parvi, albo-virides. Caudes fere semipollicares, irregulariter ramosi. Folia arcte imbricata, patentia, tenuissima, plana, elliptica, auriculæ galeæformes cornu subreflexo munitæ. Amphigastria caulem excedentia. Involucrum in ramulo parvo perianthium fere obtegens; foliis involucrealibus basi coadunatis, dentatis, erectis, lobulo lanceolato. Anguli perianthii spinis vario modo curvatis, interdum ad instar alæ confluentibus, muniti.—*Taylor, l. c.*

This description agrees, excepting the angles of the perianth, very nearly with the species here considered to be *F. probosciphora*.

4. **Frullania clavata** (Hook. fil. et Tayl. Lond. Journ. Bot. 1845, p. 88; G. L. et N. Syn. Hep. p. 428); caule procumbente vage subpinnatinve ramoso, surculis apice incrassatis, foliis imbricatis patentibus rotundato-oblongis convexis integerrimis, lobo inferiore majore galeæformi acuminato decurvo, stipulis rotundatis emarginato-bidentatis subdenticulatis, calyce subimmerso obovato biplicato tubifero, foliis perichæatialibus marginalibus ventrali dentatis.

HAB. On *Nephroma cellulosa*, Ach.: Tasmania, *Herb. Taylor*.

"Scarcely one quarter of an inch long, pale-green, sometimes brownish-purple. Stipules large, their emargination shallow and rounded. Auricles large compared with the leaves. The calyx, rising little out of the perichæatium, is widest near the mouth, below which it is rather suddenly contracted. The lateral perichæatial leaves have, besides a segment corresponding to the auricle of the leaf, an inner one which is lanceolate and dentate.—Allied to *F. trinervis*, L. et L., but this is of a dark-brown colour, has a more exerted three-nerved calyx, the auricles are less acuminate, and the stipules more entire."—*Taylor, l. c.*

5. **Frullania reptans** (Mitten, in Fl. N. Zeal. p. 161. pl. 104. f. 4).

HAB. On very wet and rotten wood: Goat Hills, New Norfolk, *Oldfield*.

6. **Frullania falciloba** (Hook. fil. et Tayl. Lond. Journ. Bot. 1844, p. 581; G. L. et N. Syn. Hep. p. 423).

HAB. Tasmania, *Gunn*. Penquite, and moist rocky banks, Risdown, *J. D. H.* Dense mats on the sides of rocks: Johnny's Creek. Rocks by the seaside: South Port, Kermantie Rivulet, and Mount Wellington, *Oldfield*. Jackey's Plain Creek, *Archer*; gathered also by *Stuart*.

7. **Frullania deplanata** (Mitten, Fl. N. Zeal. p. 161. pl. 104. f. 3).

HAB. At the roots of trees: Brown's River Gully and Johnny's Creek, *Oldfield*. Cheshunt, *Archer*.

8. **Frullania Gaudichaudii** (Nees et Mont. in Ann. des Sc. Nat. 1836, p. 13, cum icone; G. L. et N. Syn. Hep. p. 435).

HAB. Tasmania, *Admiral d'Urville*, in *Herb. Montagne*.

9. **Frullania congesta** (Hook. fil. et Tayl. Fl. Antarct. p. 52; G. L. et N. Syn. Hep. p. 451).

HAB. On the bark of *Fagus*: St. Patrick's River, *Gunn*. On trees: Ovens Creek, *Archer*.

10. **Frullania megalocarpa** (Hook. fil. et Tayl.); caule sparso procumbente laxè bipinnato, ramis





gracillimis, foliis imbricatis patentibus oblongo-ovatis acutis recurvis integerrimis, auriculis clavato-oblongis cauli parallelis stylo subulæformi interjecto, amphigastriis minutis bifidis, perianthio majore ramulum terminante oblongo supra planiusculo ventre obtuse carinato, perigoniis rotundatis sessilibus.—*Lond. Journ. Bot.* 1846, p. 404; *G. L. et N. Syn. Hep.* p. 779.

HAB. Tasmania, on Mosses, *Herb. Greville*.

Minuta, laxa, fusca, dioica. *Caulis* vix pollicares, surculi æquilati. *Perigonia* sicut perianthia ratione surculorum magna. Minor est et tenerior quam *F. exilis*, et stylo inter auriculam et caulem interposito bene distinguitur.—*Taylor*.

From the foregoing it appears that this species must be very nearly allied to *F. congesta*, and the only discrepancy is in the direction of the auricles, which Dr. Taylor says are parallel to the stem.

#### Gen. XIX. FOSSOMBRONIA, *Raddi*.

1. **Fossombronia pusilla** (Nees; *G. L. et N. Syn. Hep.* p. 597).

HAB. Damp ground: hillside, Woodburn, near Richmond; and wet crevices of rocks: gully by Brown's River, *Oldfield*; gathered also by *Mr. Archer*.

2. **Fossombronia intestinalis** (Taylor, *Lond. Journ. Bot.* 1846, p. 408; *G. L. et N. Syn. Hep.* pp. 469 et 785).

HAB. Cheshunt, *Archer*.

#### Gen. XX. ZOOPSIS, *Hook. fil. et Tayl.*

1. **Zoopsis argentea** (Hook. fil. et Tayl. *Fl. Antart.* p. 167. t. 66. f. 6; *G. L. et N. Syn. Hep.* pp. 473 et 785).

HAB. The Bedchamber, New Norfolk, *Oldfield*; frequent, intermixed with Mosses and *Hepaticæ*, *Archer*.

#### Gen. XXI. PODOMITRIUM, *Mitten*.

1. **Podomitrium Phyllanthus** (Hook.; Mitten, in *Fl. N. Zeal.* p. 164).—*Steetzia Phyllanthus*, Nees; *G. L. et N. Syn. Hep.* p. 478.

HAB. St. Patrick's River, *Gunn*. Kermantdie and Castle Forbes Rivulet, South Huon, *Oldfield*. West-end Rivulet, *Archer*.

#### Gen. XXII. STEETZIA, *Lehm.*

1. **Steetzia pisicolor** (Hook. fil. et Tayl. *Crypt. Antart.* p. 138. pl. 160. f. 7).

HAB. Yorktown Rivulet and St. Patrick's River, *Gunn*.

The fructification of this very distinct species has not yet been seen, but the fronds agree with those of *Steetzia* or *Symphogyna*.

#### Gen. XXIII. SYMPHOGYNA, *Mont. et Nees*.

1. **Symphogyna flabellata** (Hook.; M. et N.; *G. L. et N. Syn. Hep.* p. 481).—*Jungermannia flabellata*, *Hook. Musc. Exot.* t. 13.

HAB. St. Patrick's River, *Gunn*. Back River Gully, *Oldfield*, 202, *Archer*.



2. **Symphogyna rhizobola** (Schwægr. ; Nees ab E. ; G. L. et N. Syn. Hep. p. 483).—*Symphogyna obovata*, Hook. fil. et Tayl. Lond. Journ. Bot. 1844, p. 581 ; G. L. et N. Syn. Hep. p. 480. *Symphogyna pulchra*, Tayl. Lond. Journ. Bot. 1846, p. 410 ; G. L. et N. Syn. Hep. p. 788.

HAB. Tasmania, Gunn. On the ground, in very wet places, in dense shade : St. Patrick's River. Back River Gully and Mount Wellington, Oldfield. West-end Rivulet, Archer.

The *S. obovata*, Hook. fil. et Tayl., corresponds with what is here understood as the fertile state of *S. rhizobola*, and, as might be expected, the attenuations at the apices of the divisions of the fronds are absent. The calyptra, although described by Dr. Taylor as ventral, is truly dorsal, as in all others of the genus. *S. pulchra*, Tayl., described with the margins of its fronds entire, has them certainly dentate ; although the teeth are short and remote, it scarcely differs in appearance from the preceding. The specimens gathered by Dr. J. D. Hooker are finely in fruit, and the fertile stems are mixed with others corresponding in structure, but differing in habit, being prostrate, and rooting at the apices, like the plants figured in 'Musci Exotici.' The fertile stems are short and ascending, the divisions scarcely exceeding the third of an inch in length, and rounded at their apices, thus having an appearance, if seen separately from the creeping fronds, of being altogether a distinct plant.

3. **Symphogyna Lehmanniana** (Mont. et Nees ; G. L. et N. Syn. Hep. p. 483).

HAB. Tasmania, Archer.

4. **Symphogyna rhodina** (Hook. fil. et Tayl.) ; fronde minuta oblonga dichotoma tenerrima pellucida costata margine dentata calyptraque lineari longissima rosea, capsula lineari-oblonga.—Loud. Journ. Bot. 1845, p. 93 ; G. L. et N. Syn. Hep. p. 487.

HAB. Tasmania, Lyall.

*Frondes* 2-3 lin. longæ, calyptra multo breviores. *Squamæ* involucales circum basin calyptræ quadri-quinque-dentatæ, apice setacæ, erectæ. *Capsula* sæpe uno latere rima dehiscens elateresque atque semina e rima emittens, revera in valvulas numeri indefiniti apice semper coherentes divisa. *Color* totius plantæ est roseus.—Taylor, l. c.

Sufficiently different from any other Tasmanian species. From the description of the capsule it may be doubtful if it truly belongs to this genus.

#### Gen. XXIV. METZGERIA, Raddi.

1. **Metzgeria furcata** (Nees ab E. ; G. L. et N. Syn. Hep. p. 502 ; Fl. Antarct. pp. 167 et 445 ; Fl. N. Zeal. p. 166).

HAB. Var.  $\beta$ . 1. *major* : St. Patrick's River, Gunn. Var.  $\beta$ . 2. *minor* : running over the surface of rocks, Launceston, Gunn. Var.  $\epsilon$ . *prolifera* : Tasmania, Gunn. Back River Gully, Oldfield. Cheshunt, Archer.

#### Gen. XXV. SARCOMITRIUM, Corda.

1. **Sarcomitrium alternilobum** (Mitten, Fl. N. Zeal. p. 167).—*Aneura alterniloba*, Hook. fil. et Tayl. Lond. Journ. Bot. 1844, p. 527 ; G. L. et N. Syn. Hep. p. 496.

HAB. St. Patrick's River and Acheron River, Gunn. Clayey banks of the Kermadie Rivulet, Northwest Bay Gully and elsewhere, on very wet banks, Oldfield.

2. **Sarcomitrium pingue** (Mitten).—*Aneura pinguis*, Dumort. ; G. L. et N. Syn. Hep. p. 493. *Jungermannia pinguis*, Linn. Sp. Pl. ed. 2. ii. p. 1602.

HAB. Springs, Mount Wellington, and on muddy banks, Oldfield.



3. **Sarcomitrium cochleatum** (Mitten).—*Riccia cochleata*, *Hook. fil. et Tayl. Lond. Journ. Bot.* iv. p. 96; *Crypt. Antarct. p.* 56. *pl.* 66. *f.* 5.

HAB. The Falls, Cheshunt, *Archer*.

*Calyptra* cylindrica, carnosâ, setulosa.

This species seems always recognizable by the pale, slightly thickened row of marginal cells.

4. **Sarcomitrium crassum** (Schwagr.; Mitten, in *Fl. N. Zeal.* p. 167).—*Aneura crassa*, *Nees; G. L. et N. Syn. Hep. p.* 500.

HAB. Acheron River and Arthur's Lakes, *Gunn.* Cheshunt, *Archer*.

5. **Sarcomitrium multifidum** (Mitten).—*Aneura multifida*, *Dumort.; G. L. et N. Syn. Hep. p.* 496. *Jungermannia multifida*, *Linn. ed. 2. p.* 1602.

HAB. St. Patrick's River, *Gunn.*

6. **Sarcomitrium pinnatifidum** (Mitten).—*Aneura pinnatifida*, *Nees; G. L. et N. Syn. Hep. p.* 495.

HAB. St. Patrick's River, and in a rivulet at an altitude of 6000 feet, Western Mountains, *Gunn.* Ovens Creek, *Archer*.

7. **Sarcomitrium palmatum** (Mitten).—*Aneura palmata*, *Nees; G. L. et N. Syn. Hep. p.* 498. *Jungermannia palmata*, *Hedw. Theor. Gen. ed. 1. t.* 18. *f.* 93-95.

HAB. Cheshunt, *Archer*.

8. **Sarcomitrium eriocaulum** (Mitten).—*Metzgeria eriocaula*, *G. L. et N. Syn. Hep. p.* 505. *Jungermannia eriocaula*, *Hook. Musc. Exot. t.* 72.

HAB. Back River Gully, *Oldfield*.

9. **Sarcomitrium alcicorne** (Mitten).—*Aneura alcicornis*, *Hook. fil. et Tayl. Lond. Journ. Bot.* iii. 479; *Fl. Antarct. p.* 139. *pl.* 160. *f.* 8.

HAB. On rocks, in slowly running streams: Mount Wellington and elsewhere, *Oldfield, Archer*.

#### Gen. XXVI. MARCHANTIA, *Linn.*

1. **Marchantia tabularis** (Nees ab E.).

HAB. Tasmania; very common in wet shady places, where there have been fires, but also frequent even on the tops of the hills, *Gunn, J. D. II.* Back River Gully, *Oldfield.* Hospital Bay, South Huon, *Oldfield*; elsewhere, *Archer*.

*Marchantia polymorpha*, *Linn.*, is stated by Dr. Gottsche, in 'Plantæ Muellerianæ,' to occur in Tasmania, but all the specimens yet seen appear to belong to *M. tabularis*, *Nees*, which differs more in appearance than in any decided character from the European species.

2. **Marchantia pileata** (Mitten, in *Fl. N. Zeal.* p. 169).—Additur descriptio plantæ masculæ:—receptaculo masculino brevipedunculato orbiculato obtuse quadri-quinquelobo.

HAB. On the ground, with *M. tabularis*, *J. D. II., Archer*.

*Pedunculus* bi-trilinearis, basi squamosus. *Receptaculum* latitudine bilineare, margine crenulatum.

The plant referred to this species corresponds so nearly in the size, colour, and areolation of its fronds, that there seems little reason to doubt its being the male of that already described in the 'Flora of New Zealand.'

3. **Marchantia foliacea** (Mitten, in *Fl. N. Zeal.* p. 168).

HAB. Tasmania, *Archer*.











*Acme*  
Bookbinding Co., Inc.  
300 Summer Street  
Boston, Mass. 02210

oogle

